Check List the journal of biodiversity data

LISTS OF SPECIES

Check List 12(6): 2000, 22 November 2016 doi: http://dx.doi.org/10.15560/12.6.2000
ISSN 1809-127X © 2016 Check List and Authors

New records of feather mites (Acariformes: Astigmata) from non-passerine birds (Aves) in Brazil

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Abstract: We present the results of our investigation of feather mites (Astigmata) associated with non-passerine birds in Brazil. The studied birds were obtained from roadkills, airport accidents, and from capitivity. Most ectoparasites were collected from bird specimens by washing. A total of 51 non-passerine species from 20 families and 15 orders were examined. Of them, 24 species were assessed for feather mites for the first time. In addition, 10 host associations are recorded for the first time in Brazil. A total of 101 feather mite species were recorded, with 26 of them identified to the species level and 75 likely representing undescribed species; among the latter samples, five probably represent new genera. These records allowed the first inference about the host and mite association of many species, as well as the first discussion about the geographical distribution of some feather mite taxa along the host distribution.

Key words: plumicoles; taxonomy; systematics; ectoparasitism; symbionts; Neotropics; biodiversity

INTRODUCTION

Feather mites (Astigmata: Analgoidea and Pterolichoidea) are the most diverse and abundant group of ectosymbionts living on bird plumage (Gaud and Atyeo 1996; Proctor 2003). With the exception of the family Pyroglyphidae (Analgoidea), in which some representatives live in nests rather than on a host's body, the majority of feather mites have morphological adaptations for permanent living in specific microhabitats on birds, such as downy, covert or flight feathers, cavities inside quills of the flight feathers, and the skin surface (Dabert and Mironov 1999). Depending on the host species, each type of microhabitat can harbor a variety of feather mite species, often with specific microhabitat partitioning or coexistence without intense competition (Atyeo and Pérez 1988; Pérez 1995; Bochkov and Mironov 2008; Hernandes and Mironov 2015). This considerably enhances the mite diversity which can be found in a single bird species.

While most cases of feather mite transfer occur by physical contact between birds of the same species (e.g., during parental care and copulation), which often links the evolutionary path of the groups and may to some extent mirror their phylogenetic trees (Dabert and Mironov 1999; Dabert 2005), there are exceptional cases of interspecific tranfers that are poorly understood (Mironov and Dabert 1999; Hernandes et al. 2014). Feather mites are often reported as ectocommensals, living harmlessly on the bird's body, feeding on the uropygial oil produced by the birds (Blanco et al. 2001). The few records of parasitism by feather mites occur mainly in groups that live on the skin surface and on the downy feathers, close to or in contact with the skin, such as the analgoid families Analgidae, Psoroptoididae, Dermationidae, and Epidermoptidae, with the latter two families being true parasites by any criteria (Fain 1965; Mironov 2013; Hernandes et al. 2014; Soares et al. 2016).

More than 2,400 feather mite species have been described worldwide, although this may represent only about 20% of the extant total (Gaud and Atyeo 1996; Mironov 2003; Proctor 2003). Many species have been described from birds of the Palearctic and Afrotropic regions (Gaud and Atyeo 1996), while birds from other tropical regions, specifically the Neotropics, still harbor a myriad of undescribed mites (Valim et al. 2011; Barreto et al. 2012). Brazil is currently the country with the richest avifauna of the world, with nearly 1,900 species (CBRO 2014). However, less than 20% of the bird species from this country has been explored for their feather mites (Valim et al. 2011). The lack of knowledge and the huge bird diversity makes Brazil one of the best places for feather mite taxonomic discoveries, specifically for bird orders other than Passeriformes, which are still poorly sampled in feather mite studies mainly due to the general difficulty in collecting these birds. Here, we

report feather mite associations with non-passerine birds from Brazil.

MATERIALS AND METHODS

We analyzed mites from 51 bird species. The majority of these birds (43 species) were roadkills and airplane casualties from various localities in Brazil. Ten bird species were represented by detached feathers collected from captive individuals. The dead birds were washed to remove ectosymbionts using water and detergent (Clayton and Walther 1997), then the water was passed through filter paper and the captured material was examined under a dissecting microscope. Retrieved mites were put into 30% lactic acid at 50°C for 24 hours, then mounted in microscopic slides using Hoyer's medium and heated at 50°C for 5 days. The slides were then sealed with varnish and labeled. By means of light microscope with differential interference contrast (DIC) mites were identified to supraspecific taxa using the dichotomous keys in Gaud and Atyeo (1996) and to species, when possible, using relevant literature for each taxon. Voucher specimens were deposited in the Acari collection of Departamento de Zoologia Universidade Estadual Paulista, Rio Claro, São Paulo State, Brazil (DZUNESP-RC).

Below we present the feather mites using the sequence and classification proposed by Gaud and Atyeo (1996), with further modifications (e.g., OConnor 2009), as the superfamily Freyanoidea is included in the superfamily Pterolichoidea. Bird sequence and taxonomy follows Del Hoyo (1992, 1994, 1996, 1997, 1999, 2001, 2002) for suprafamilial ranks and CBRO (2014) for family, genera and species.

RESULTS

In total, we examined 108 specimens of 51 bird species in 20 families and 15 orders, representing 2.7% of the 1,902 species occurring in Brazil and 6.1% of the 837 non-passerines from the country (CBRO 2014). Twenty-four bird species were assessed for the first time concerning their feather mites, and 10 new host-simbiont associations were discovered for Brazil (Table 1). As for the mites, 101 species from 18 families were recorded (Table 2); from

Table 1. Feather mite species recorded on non-passerine birds in Brazil in this study. N is the number of analyzed birds. ORIG = origin of the host: W – wild, C – captivity. SF. = feather mite superfamilies: A – Analgoidea, P – Pterolichoidea. **Birds**: (*) birds with first record of feather mites; (**) birds with first record of feather mites for Brazil. **Feather mites**: (*) first record for Brazil and the host, (**) first record for Brazil, (***) first record only for the host species.

Birds			Feather mites				
Order	**Family**	*Species*	**Orig.**	**N**	**SF.**	**Family**	**Species**
Tinamiformes	Tinamidae	*Nothura maculosa***	W	1	P	Crypturoptidae	*Mesosathes nothurae***
Anseriformes	Anatidae	*Cairina moschata*	C	1	A	Xolalgidae	*Vingrassia* sp.*
Galliformes	Cracidae	*Penelope obscura**	C	1	P	Pterolichidae	Pterolichinae gen. A sp.*
		*Aburria cujubi**	C	1	P	Pterolichidae	Pterolichinae gen. B sp.*
		*Nothocrax urumutum**	C	1	A	Analgidae	*Megninia* sp. B*
				1	A	Dermationidae	*Rivoltasia* sp.*
				1	P	Pterolichidae	*Pterolichus* sp. A*
		*Crax fasciolata**	W	1	A	Pyroglyphidae	*Paralgopsis* sp. A*
				2	A	Analgidae	*Megninia* sp. A*
				2	P	Pterolichidae	Pterolichinae gen. D sp.*
				1	P	Pterolichidae	Pterolichinae gen. C sp. B*
		*Crax blumenbachii**	C	1	P	Pterolichidae	Pterolichinae gen. C sp. A*
		*Pauxi tomentosa**	C	1	P	Pterolichidae	Pterolichinae gen. C sp. A*
Pelecaniformes	Phalacrocoracidae	*Phalacrocorax brasilianus*	W	2	A	Avenzoariidae	*Scutomegninia* (*S.*) *microfalcifera***
				1	A	Alloptidae	*Dinalloptes chelionatus**
				1	A	Alloptidae	*Plicatalloptes* sp.*
				2	P	Freyanidae	*Michaelia neotropica*
Ciconiiformes	Ardeidae	*Botaurus pinnatus**	W	1	P	Pterolichidae	*Ardeacarus* sp. A
		*Nycticorax nycticorax***	W	1	P	Pterolichidae	*Ardeacarus* sp. F*
				1	P	Pterolichidae	*Ardeialges* sp. A*
				1	A	Xolalgidae	*Pteralloptes* sp. A*
		*Butorides striata***	W	1	P	Pterolichidae	*Ardeacarus* sp. B*
		*Bubulcus ibis***	W	1	P	Pterolichidae	*Ardeacarus* sp. C*
		*Ardea alba***	W	1	P	Pterolichidae	*Ardeacarus* sp. E*
		*Syrigma sibilatrix**	W	1	P	Pterolichidae	*Ardeacarus* sp. D*
				1	P	Pterolichidae	*Ardeialges* sp. B*
				1	P	Kramerellidae	*Pseudogabucinia* sp. B*
				1	A	Xolalgidae	*Pteralloptes* sp. B*
Falconiformes	Cathartidae	*Coragyps atratus*	W	1	P	Pterolichidae	*Pterolichus* sp. B*
	Accipitridae	*Elanus leucurus**	W	1	P	Kramerellidae	*Pseudogabucinia* sp. A*
		*Ictinia plumbea**	W	1	P	Gabuciniidae	*Metagabucinia* sp.*

Continued

Table 1. *Continued.*

Birds			Feather mites				
Order	**Family**	*Species*	**Orig.**	**N**	**SF.**	**Family**	**Species**
		*Heterospizias meridionalis**	W	1	P	Gabuciniidae	*Hieracolichus* sp. A*
	Falconidae	*Caracara plancus***	W	3	P	Gabuciniidae	*Aetacarus* sp. A**
				1	A	Xolalgidae	*Dubininia* sp. A**
		*Milvago chimachima**	W	1	P	Gabuciniidae	*Aetacarus* sp. B*
				1	P	Pterolichidae	*Epopolichus* sp.*
Gruiformes	Rallidae	*Aramides cajaneus**	W	2	P	Pterolichidae	*Grallobia* sp. A*
				2	P	Pterolichidae	*Grallobia* sp. B*
				1	P	Pterolichidae	*Grallolichus* sp. A*
				1	P	Pterolichidae	*Grallolichus* sp. B*
		*Gallinula galeata***	W	1	A	Alloptidae	*Psilobrephosceles ortygommetrae**
				1	A	Analgidae	*Megniniella gallinulae***
				1	A	Analgidae	*Metanalges grossus***
				1	P	Pterolichidae	*Grallobia* sp. B*
Columbiformes	Columbidae	*Columbina talpacoti*	W	1	A	Analgidae	*Micralges steganonotus***
				1	A	Analgidae	*Diplaegidia columbigallinae*
				1	A	Dermationidae	*Paddacoptes talpacoti*
				3	P	Falculiferidae	*Byersalges talpacoti*
				1	P	Falculiferidae	*Byersalges phyllophorus*
				2	P	Falculiferidae	*Hyperaspidacarus tridentatus**
		Columbina squammata	W	1	P	Falculiferidae	*Byersalges talpacoti*
				1	A	Analgidae	*Micralges steganonotus**
		*Patagioenas speciosa**	W	1	P	Falculiferidae	*Falculifer* sp. C*
		*Patagioenas picazuro**	W	4	A	Analgidae	*Diplaegidia* sp.*
				1	P	Falculiferidae	*Falculifer* sp. A*
				1	P	Falculiferidae	*Falculifer* sp. B*
		Leptotila rufaxilla	W	1	P	Falculiferidae	*Falculifer leptotilae*
Psittaciformes	Psittacidae	*Anodorhynchus hyacinthinus*	C	1	P	Pterolichidae	*Neorhytidelasma* sp. B*
		Ara ararauna	C	1	P	Psoroptoididae	*Chiasmalges* sp. A*
				2	A	Xolalgidae	*Fainalges* sp. A*
				1	P	Pterolichidae	*Neorhytidelasma* sp. A*
				2	P	Pterolichidae	*Lopharalichus* sp. A*
		Ara chloroptera	C	1	A	Xolalgidae	*Fainalges* sp. A*
		Psittacara leucophthalmus	W	3	P	Psoroptoididae	*Chiasmalges* sp. B*
				2	A	Xolalgidae	*Fainalges* sp. C*
				1	A	Xolalgidae	*Protonyssus mironovi*
				3	A	Pyroglyphidae	*Paralgopsis* sp. B
				1	P	Pterolichidae	*Genoprotolichus* sp.*
				2	P	Pterolichidae	*Neorhytidelasma* sp. C*
		Brotogeris chiriri	W	2	P	Pterolichidae	*Lopharalichus* sp. B*
				1	A	Xolalgidae	*Fainalges* sp. D*
				1	A	Xolalgidae	*Protonyssus athoracicus*
				1	A	Dermationidae	*Psittophagoides brotogeris****
		*Forpus xanthopterygius**	W	1	A	Xolalgidae	*Dubininia* sp. B*
				1	A	Xolalgidae	*Lopharalichus* sp. C*
Cuculiformes	Cuculidae	*Piaya cayana***	W	1	A	Analgidae	*Scutalges* sp.*
		Guira guira	W	6	P	Gabuciniidae	*Piciformobia guirae*
				5	P	Gabuciniidae	*Piciformobia* sp.*
				1	P	Ascouracaridae	*Ascouracarus* sp. A*
Strigiformes	Tytonidae	*Tyto furcata**	W	1	A	Xolalgidae	*Glaucalges* sp. A*
				3	P	Kramerellidae	*Dermonoton* sp. A*
				2	P	Kramerellidae	*Kramerella quadrata***
	Strigidae	*Megascops choliba*	W	3	P	Kramerellidae	*Dermonoton* sp. C*
				1	P	Kramerellidae	*Petitota* sp.*
		*Pulsatrix koeniswaldiana**	W	1	P	Kramerellidae	*Dermonoton* sp. D*
		*Athene cunicularia***	W	3	A	Xolalgidae	*Glaucalges* sp. B**
				2	P	Kramerellidae	*Dermonoton* sp. B*
		*Asio stygius**	W	1	P	Kramerellidae	*Kramerella* sp.*
Caprimulgiformes	Caprimulgidae	*Lurocalis semitorquatus**	W	1	P	Ascouracaridae	*Ascouracarus chordeili****
		Hydropsalis albicollis	W	1	P	Gabuciniidae	*Paragabucinia* sp. B
	Nyctibiidae	*Nyctibius griseus***	W	1	P	Ascouracaridae	*Ascouracarus* sp. B*

Continued

Table 1. *Continued.*

Birds			Feather mites				
Order	**Family**	*Species*	**Orig.**	**N**	**SF.**	**Family**	**Species**
Apodiformes	Apodidae	*Chaetura meridionalis*	W	1	A	Dermationidae	Dermationinae gen. sp.*
		*Streptoprocne biscutata**	W	1	P	Eustathiidae	*Neochauliacea* sp. A*
				1	P	Eustathiidae	*Neochauliacea* sp. B*
				1	P	Eustathiidae	*Neochauliacea ocellata****
				2	P	Eustathiidae	*Rhynchocaulus paradoxus**
				1	A	Thysanocercidae	*Thysanocercus longitarsus****
	Trochilidae	*Thalurania glaucopis*	W	1	A	Proctophyllodidae	*Allodectes thaluraniae*
				1	A	Proctophyllodidae	*Toxerodectes* sp.*
				1	A	Proctophyllodidae	*Xynonodectes* sp.*
				1	A	Ptyssalgidae	*Ptyssalges* sp.*
		Colibri serrirostris	W	2	A	Proctophyllodidae	*Toxerodectes subulatus*
Piciformes	Rhamphastidae	*Rhamphastos toco**	W	2	P	Gabuciniidae	*Tocolichus* sp.*
	Picidae	*Colaptes melanochloros**	W	1	A	Dermationidae	*Passeroptes* sp.*
		*Colaptes campestris**	W	1	P	Gabuciniidae	*Captolichus* sp.*
				1	A	Ascouracaridae	*Cystoidosoma centuri**

those, only 26 could be identified to species. Seventy eight mite species represent both first-time associations with corresponding bird host and new records for Brazil; nine species (six of which are already named species) represent first-time records for Brazil but not for the host bird; and four mite records constitute new host associations but not new occurrences of that mite species in Brazil (Table 1). Feather mites were recorded for the first time in Brazil on the following bird families: Ardeidae, Falconidae, Tytonidae, and Nyctibiidae.

The richest feather mite families recorded were Pterolichidae (27 species), Xolalgidae (12 species), Gabuciniidae and Kramerellidae (nine species each) (Table 2). The fact that only non-passerine birds were analyzed explains the higher number of pterolichoidean mites (62 species) in comparison with analgoideans (39 species). Pterolichidae was also the family with the highest number of probable new genera (four out of five supposed new genera), all belonging to the subfamily Pterolichinae.

Table 2. Feather mite taxa on non-passerine birds of Brazil recorded in this study.

Superfamily	Family	Genera	Species	Named species
Analgoidea	Alloptidae	3	3	2
	Analgidae	6	8	4
	Avenzoariidae	1	1	1
	Dermationidae	4	5	2
	Proctophyllodidae	3	4	2
	Psoroptoididae	1	2	0
	Ptyssalgidae	1	1	0
	Pyroglyphidae	1	2	0
	Thysanocercidae	1	1	1
	Xolalgidae	7	12	2
Pterolichoidea	Ascouracaridae	2	4	2
	Crypturoptidae	1	1	1
	Eusthatiidae	2	4	2
	Falculiferidae	3	7	4
	Freyanidae	1	1	1
	Gabuciniidae	7	9	1
	Kramerellidae	4	9	1
	Pterolichidae	9	27	0
Total		56	101	26

Corrections to previously published records of feather mites from Brazil

In our study we found some mistakes and missed records in the previous checklist of feather mites from Brazil (Valim et al. 2011). These mistakes were mostly caused by inaccurate locality information originally reported for the birds. After analyses of each case, eight feather mite species were added to the list and four were removed, and eight bird species were added and six previously indicated as hosts were removed.

Mite and bird species added

With the exception of *Brephosceles discidicus*, the remaining records below were missed in the checklist by Valim et al. (2011):

- *Brephosceles discidicus* Peterson, 1971 (Alloptidae: Alloptinae) was recorded from captive *Cygnus melancoryphus* (Molina, 1782) (Anseriformes: Anatidae) (Valim et al. 2006). This mite was not included by Valim et al. (2011) as that work deliberately did not include data for hosts in captivity, even though this bird naturally occurs in Brazil. *Brephosceles discidicus* was originally described (Peterson 1971) from *Cygnus bewicki* (Yarrell, 1838), a Palearctic bird species that is now considered a subspecies of *C. columbianus* (Ord, 1815). Two species of the genus *Brephosceles*, *B. cygni* Vasyukova & Mironov, 1991 and *B. anatina* Dubinin, 1951 were described or reported from swans (*Cygnus* spp.). Both mite and bird species were added to the analyses in this paper.
- *Tetraolichus forficula* (Trouessart & Neumann, 1888) (Pterolichidae: Pterolichinae) (as *Pterolichus* (*Pseudalloptes*) *forficula*) from *Ortalis squamata* (Lesson, 1829) (Galliformes: Cracidae) (as *Ortalida squamata*), were

added to the list (Trouessart and Neumann 1888: 343; Atyeo and Gaud 1992), although Mironov et al. (2010) mentioned that the placement of this species in the genus *Tetraolichus* by Gaud and Atyeo (1996) seems questionable. Both mite and bird were added.

- *Xoloptes minor* Trouessart & Neumann, 1888 (Pterolichidae: Pterolichinae), also from *O. squamata*, was added to the list (Trouessart and Neumann 1888: 347).
- *Ibidocolus furcatus* (Peterson & Atyeo, 1977) (Alloptidae: Alloptinae) from *Theristicus caudatus* (Boddaert, 1783) (Threskiornithidae), were added to the list (Mironov 1998: 45). Both mite and bird were added.
- *Eustathia manchiae* Peterson, Atyeo & Moss, 1980 (Eustathiidae) from *Chaetura meridionalis* Hellmayr, 1907 (Apodiformes: Apodidae) (as *C. andrei meridionalis*) was added to the list (Peterson et al. 1980). Only the bird was added.
- *Lopharalichus denticulatus* (Mégnin & Trouessart, 1884) (Pterolichidae: Pterolichinae) (as *Pterolichus denticulatus*) from *Pyrrhura cruentata* (Wied, 1820) (Psittaciformes: Psittacidae) (as *Conurus cruentatus*) was added to the list (Mégnin and Trouessart 1884: 212; Gaud and Atyeo 1996: 128). Only the mite was added.
- *Paralgopsis paradoxus* (Trouessart, 1899) (Pyroglyphidae: Paralgopsinae) from *Pyrrhura leucotis* (Kuhl, 1820) (as *Conurus leucotis*) and also recorded on *Amazona farinosa* (Boddaert, 1783) (as *Chrysotis farinosa*) (Psittacidae) and *Eupsittula pertinax chrysogenys* (Massena & Souance, 1854) (as *C. chrysogenys*) (Trouessart 1899: 15) were added to the list. The latter two birds and the mite were added.
- *Paralgopsis ctenodontus* Gaud, 1968 (Pyroglyphidae: Paralgopsinae) from *Ara macao* (Linnaeus, 1758) (Psittacidae) (Gaud 1968b: 309) were added to the list. Both mite and bird were added.
- *Fainalges intermedius* (Trouessart, 1899) (Xolalgidae) (as *Protalges annulifer intermedius*) from *Aratinga solstitialis* (Linnaeus, 1766) (Psittacidae) (as *Conurus solstitialis*) (Trouessart 1899: 32; Gaud and Atyeo 1981) was added to the list. Only the mite was added.

Mite species excluded

- *Aralichus ognorhynchi* Atyeo & Pérez, 1990 (Pterolichidae: Pterolichinae) was excluded from the list, because the host, *Ognorhynchus icterotis* (Massena & Souancé, 1854) (Psittacidae), is restricted to the Andes and does not occur in Brazil (Vitor Q. Piacentini pers. comm.), although mentioned by Atyeo and Pérez (1990: 19).
- *Neumannella chelifer* (Trouessart & Neumann, 1888) (Dermoglyphidae) is removed from the records of Brazil, because it is absent from the reference reported by Valim et al. (2011: 299) (Trouessart and Neumann 1888: 349); also, the host, *Crypturellus cinnamomeus* (Lesson, 1842), occurs only in Central America and not in Brazil.
- *Protalges robini* Trouessart, 1885 (Analgidae: Protalginae) was excluded from the list, because the host, *Aulacorhynchus sulcatus* (Swainson, 1820) (Piciformes: Ramphastidae), is restricted to the Andes and does not occur in Brazil (Vitor Q. Piacentini pers. comm.), despite originally reported as described from a bird collected in Brazil (Trouessart 1885: 55).
- *Ptyssalges major* (Trouessart, 1886) (Analgoidea: Ptyssalgidae) was excluded from the list, because the host, *Eutoxeres aquila* Bourcier, 1847 (Trochilidae), does not occur in Brazil (Vitor Q. Piacentini pers. comm.), despite being mentioned by Atyeo and Gaud (1979).

Bird species excluded

- *Pteroglossus torquatus* Gmelin, 1788 (Piciformes: Ramphastidae) is removed from the list. Valim et al. (2011: 299) listed this bird as one of the hosts of *Ramphastobius chiasma*. However, this host occurs only in Central America and was originally reported from Costa Rica, Honduras, and Mexico (Atyeo et al. 1987: 156), not from Brazil.
- *Ramphastos cuvieri* (Wagler, 1827) (Piciformes: Ramphastidae) is considered a subspecies of *R. tucanus* Linnaeus, 1758 by the majority of the bird taxonomists (Vitor Q. Piacentini pers. comm.), and therefore, the record of this bird as a host species of the mite *Ramphastobius loricatus* (Pteronyssidae) was removed from the list.
- *Crypturellus boucardi* (Sclater, 1859) (Tinamidae) from Mexico was indicated as the type host of *Mesosathes meniscurus* (Crypturoptidae) and was mistakenly included in the appendix list of Brazilian hosts (Valim et al. 2011: 317). This bird is endemic to Central America and does not occur in Brazil.

Our knowledge of feather mites inhabiting Brazilian birds has considerably increased after the publication of the first checklist in 2011: a total of 51 bird species and 71 named feather mite species have been added (Goulart et al. 2011; Moraes et al. 2011; Amaral el al. 2012; Hernandes 2012; 2013a, 2013b; 2014; Hernandes and Valim 2012, 2014; Jardim et al. 2012; Enout et al. 2012; Hernandes et al. 2014; 2015a, 2015b; Mironov and Hernandes 2014; Mironov et al. 2015; 2016; Pedroso et al. 2015; Hernandes and OConnor 2015; Hernandes and Mironov 2015; Gomes et al. 2015; Hernandes et al. 2016; Hernandes and Pedroso 2016). Including the data from the present study, the feather mites recorded in Brazil total 272 named species associated with 306 bird species.

Species Accounts

Superfamily Analgoidea Trouessart & Mégnin, 1884
Family Alloptidae Gaud, 1957
Subfamily Alloptinae Gaud, 1957

Genus *Plicatalloptes* Dubinin, 1955

***Plicatalloptes* sp.** (Figures 1 and 2)

Material examined. 32 males, 54 females and 3 nymphs ex *Phalacrocorax brasilianus* (Gmelin, 1789) (Pelecaniformes: Phalacrocoracidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, 25.VIII.2008, D.V. Boas-Filho col. (#390).

Remarks. There are six species of *Plicatalloptes* recorded on birds of the families Threskiornithidae and Phalacrocoracidae (Mironov 1996). This is the first record of the genus in the Neotropical region (Mironov 1996; Galloway et al. 2014).

Genus *Dinalloptes* Gaud & Mouchet, 1957

Dinalloptes chelionatus Atyeo & Peterson, 1966 (Figures 3 and 4)

Material examined. 3 males (heteromorphic), 3 males (homeomorphic) and 26 females ex *Phalacrocorax brasilianus* (Gmelin, 1789) (Pelecaniformes: Phalacrocoracidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, 25.VIII.2008, D.V. Boas-Filho col. (#390).

Remarks. *Dinalloptes chelionatus* was described from *Phalacrocorax auritus* (Lesson, 1831) in Florida, USA (Atyeo and Peterson 1966) and later reported from the same host in Cuba (Černý 1967). This is the first record of *D. chelionatus* on *P. brasilianus* and the first record of this mite species in Brazil.

Genus *Psilobrephosceles* Peterson & Atyeo, 1968

Psilobrephosceles ortygometrae (Canestrini, 1878)

Material examined. 5 males and 7 females ex *Gallinula galeata* (Lichtenstein, 1818) (Gruiformes: Rallidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, 09.IV.2010, D.V. Boas-Filho col. (#789).

Remarks. This monotypic genus was described from *Porzana pusilla* (Pallas, 1776) (Rallidae) and reported from several rallid species in Europe, Asia, and Africa (Gaud 1968a; Peterson and Atyeo 1968; Corpuz-Raros 1993). This is the first record of this species from the New World.

Family Analgidae Trouessart & Mégnin, 1884
Subfamily Megniniinae Gaud & Atyeo, 1982
Genus *Diplaegidia* Hull, 1934

Diplaegidia columbigallinae Černý, 1975

Material examined. 2 males, 2 females and 1 immature ex *Columbina talpacoti* (Temminck, 1811) (Columbiformes: Columbidae), Brazil, SP, Valinhos, 22°58′ S, 046°59′ W, 14.IX.2010, U. Kawazoe col. (#795).

Remarks. The genus *Diplaegidia* is restricted to Columbiformes and includes seven species (Gaud 1976). *Diplaegidia columbigallinae* has been described from *C. talpacoti* from Suriname (Černý 1975), and was later recorded in Brazil from São Paulo state on *C. talpacoti* and *Zenaida auriculata* (Des Murs, 1847) by Moraes et al. (2011) and Goulart et al. (2011), respectively. However, the photographs provided by Goulart et al. (2011) depict a species different from the true *D. columbigallinae*.

***Diplaegidia* sp.**

Material examined. 8 females ex *Patagioenas picazuro* (Temminck, 1813) (Columbiformes: Columbidae), Brazil, SP, Campinas, 22°49′ S, 047°02′ W, D.V. Boas-Filho col. (#59); 1 female, same host species, Brazil, SP, Jaguariúna, 22°42′ S, 046°59′ W, 09.III.2010, D.V. Boas-Filho col. (#689).

Remarks. This is the first record of feather mites on *P. picazuro*.

Genus *Micralges* Gaud & Atyeo, 1991

Micralges steganonotus Gaud & Atyeo, 1991

Material examined. 7 males and 14 females ex *Columbina talpacoti* (Temminck, 1811) (Columbiformes: Columbidae), Brazil, SP, Valinhos, 22°58′ S, 046°59′ W, 14.IX.2010, U. Kawazoe col. (#795); 1 male and 5 females ex *Columbina squammata* (Lesson, 1831) (Columbidae), Brazil, PA, Santana do Araguaia, Faz. Fartura, 09°19′ S, 050°20′ W, 30.IX.2010, D.V. Boas-Filho col. (#807).

Remarks. *Micralges steganonotus* is the sole member of its genus and is known from birds of the genus *Columbina* from Colombia, Trindad, Puerto Rico, and Guiana (Gaud and Atyeo 1991). This is the first record of *M. steganonotus* in Brazil and the first record of this species on *C. squammata*.

Genus *Megninia* Berlese, 1883

***Megninia* sp. A**

Material examined. 7 males and 4 females ex *Crax fasciolata* (Spix, 1825) (Galliformes: Cracidae), Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°19′ S, 050°20′ W, 08.IX.2011, D.V. Boas-Filho col. (#1007); 1 female, same host species, locality and collector, 11.IX.2009, (#562).

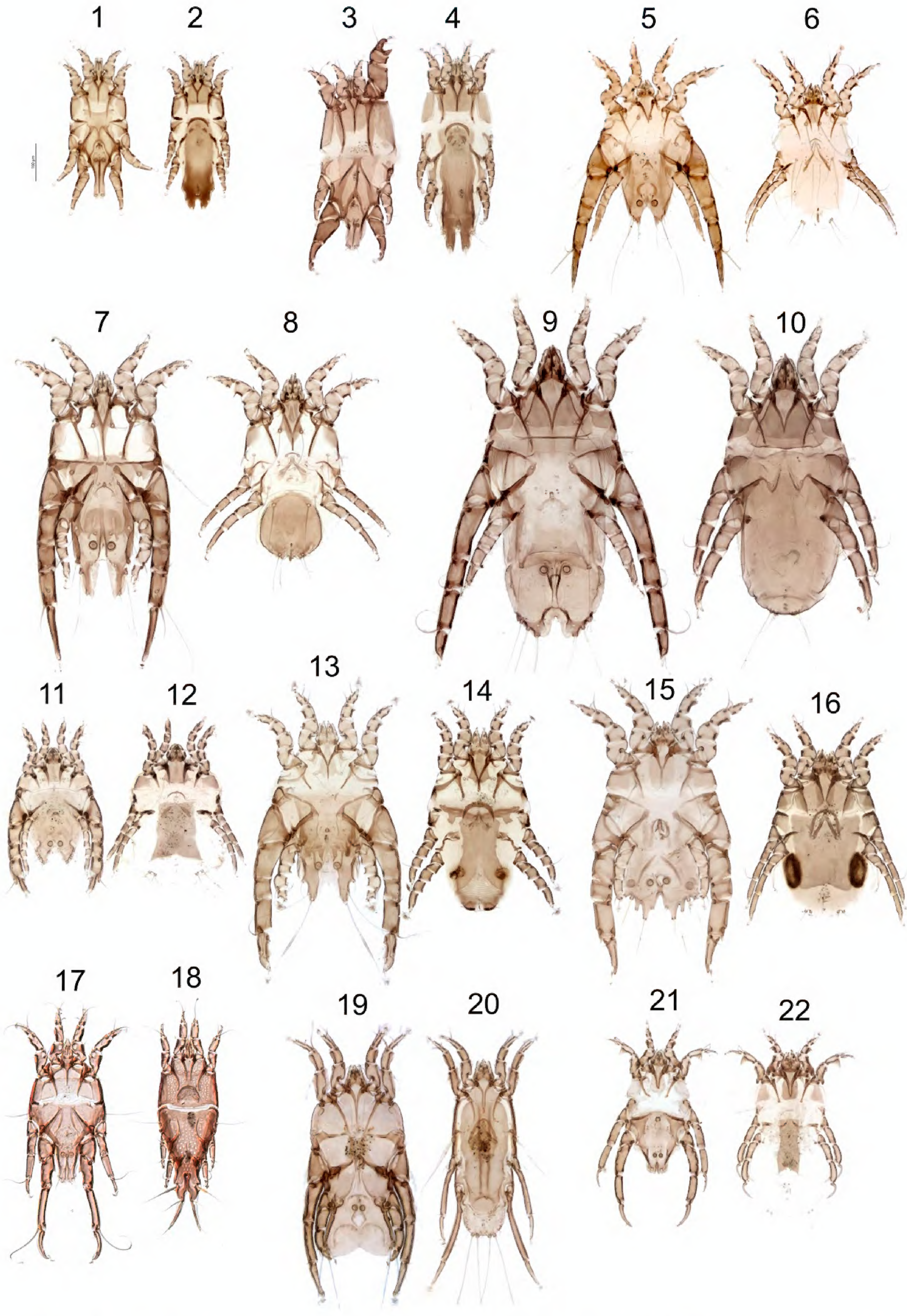
Remarks. The genus *Megninia* currently includes more than 30 species associated with galliforms, cuculiforms, coliiforms, and passeriforms (Mironov and Galloway 2002a). Mironov and Galloway (2002a) noted that *Megninia* badly needs a revision because it includes within it morphologically distinct mites from several orders of birds. The species recorded here represents an undescribed species most similar to *M. ginglymura* (Méginin, 1877), a mite already reported on domestic chickens in Brazil (Amaral et al. 1975; Gaud et al. 1985). This is the first record of a feather mite on this host.

***Megninia* sp. B**
(Figures 5 and 6)

Material examined. 1 male and 5 females ex *Nothocrax urumutum* (Spix, 1825) (Galliformes: Cracidae), Brazil, SP, Campinas, Bosque Jequitibás, 22°54′ S, 047°03′ W, 19.V.2008, P.A.N. Felippe col. (#330).

Remarks. The undescribed species recorded here is most similar to *M. cubitalis* (Mégnin, 1877) and is another species recorded on domestic chickens in Brazil (Amaral et al. 1975; Gaud et al. 1985). This is the first record of a feather mite on this host.

Genus *Megniniella* Gaud, 1958



Figures 1–22. Feather mites (Analgoidea) recorded on non-passerine birds of Brazil. *Plicatalloptes* sp. **1** ♂, **2** ♀; *Dinalloptes chelionatus* **3** ♂, **4** ♀; *Megninia* sp. B **5** ♂, **6** ♀; *Megniniella gallinulae* **7** ♂, **8** ♀; *Metanalges grossus* **9** ♂, **10** ♀; *Scutalges* sp. **11** ♂, **12** ♀; *Scutomegninia (S.) microfalcifera* **13** ♂, **14** ♀; *Chiasmalges* sp. A **15** ♂, **16** ♀; *Thysanocercus longitarsus* **17** ♂, **18** ♀; *Protonyssus mironovi* **19** ♂, **20** ♀; *Pteralloptes* sp. **21** ♂, **22** ♀.

Megniniella gallinulae (Buchholz, 1869)
(Figures 7 and 8)

Material examined. 6 males and 8 females ex *Gallinula galeata* (Lichtenstein, 1818) (Gruiformes: Rallidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, 09.IV.2010, D.V. Boas-Filho col. (#789).

Remarks. *Megniniella gallinulae* has been recorded in the New World from Cuba on *G. galeata* and also in the Old World on *G. chloropus* (Linnaeus, 1758), *G. angulata* Sundevall, 1850, and *Amaurornis phoenicurus phoenicurus* (Černý 1967; Gaud 1958; 1968a; Gaud and Mouchet 1959a; Mironov and Galloway 2002b; Wang and Fan 2010). This is the first record of *Megniniella* in Brazil and the first record of feather mites on *G. galleata* from Brazil, since this bird species was split from *G. chloropus* (see Remsen et al. 2016: Proposal 416, September 2009).

Genus *Metanalges* Trouessart, 1919

Metanalges grossus (Berlese, 1898)
(Figures 9 and 10)

Material examined. 4 males and 4 females ex *Gallinula galeata* (Lichtenstein, 1818) (Gruiformes: Rallidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, 09.IV.2010, D.V. Boas-Filho col. (#789).

Remarks. The genus *Metanalges* comprises 11 species in two subgenera (*Metanalges* and *Agrialges*) (Mironov and Galoway 2002b). Two species of *Metanalges* have been recorded on rallids in Brazil: *M.* (*Agrialges*) *porzana* Berla, 1960 from *Porzana albicollis* (Vieillot, 1819) and *M.* (*A.*) *saracura* Berla, 1960 from *Aramides saracura* (Spix, 1825) (Berla 1960). *Metanalges grossus* was described on *G. chloropus* from Europe and was reported on this host in Africa and Central America (Černý 1961; Černý 1967; Gaud 1968a; Mironov 1981; 1997; Mironov and Galloway 2002b). This is the first record of *Metanalges* in Brazil, and the first record of feather mites on *G. galeata*.

Genus *Scutalges* Gaud, 1966

***Scutalges* sp.**
(Figures 11 and 12)

Material examined. 1 male, 4 female and 12 nymphs ex *Piaya cayana* (Linnaeus, 1766) (Cuculiformes: Cuculidae), Brazil, SP, Araras, km 52 W, SP 191, 22°22′ S, 047°27′ W, 18.III.2014, G.O. Almeida col.

Remarks. The genus *Scutalges* includes three species described from cuculids from Africa (Gaud 1966). The species recorded here represents an undescribed species most similar to *S. carreti* (Gaud and Mouchet, 1959). This is the first record of *Scutalges* outside Africa and also the first record of feather mites from *P. cayana* in Brazil.

Family Avenzoariidae Oudemans, 1905
Subfamily Bonnetellinae Atyeo & Gaud, 1981
Genus *Scutomegninia* Dubinin, 1951

Scutomegninia (S.) microfalcifera Mironov, 1990
(Figures 13 and 14)

Material examined. 5 males, 9 females and 3 nymphs ex *Phalacrocorax brasilianus* (Gmelin, 1789) (Pelecaniformes: Phalacrocoracidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, 25.VIII.2008, D.V. Boas-Filho col. (#390); 6 males, same host species, locality and collector, 2009.

Remarks. This species was described from *P. auritus* (Lesson, 1831) and has already been recorded on *P. brasilianus* from Colombia and United States (Mironov 2000); this is the first record of this mite species in Brazil.

Family Dermationidae Fain, 1965
Subfamily Dermationinae Fain, 1965

Genus and species undetermined

Material examined. 1 male and 2 females ex *Chaetura meridionalis* Hellmayr, 1907 (Apodiformes: Apodidae), Brazil, SP, Rio Claro, Centro, 22°24′ S, 047°33′ W, 01.II.2014, C.O.A. Gussoni col.

Remarks. Two dermationine genera have been previously recorded on swifts (Apodidae): *Apodicoptes* Fain, 1965 and *Passeroptes* Fain, 1965 (Fain 1965; Mironov et al. 2005a). This mite recorded here belongs to an undescribed genus due to a unique set of features: the opisthosoma is rounded in males, tibiae III and IV lacking apicoventral expansions, and femora III and IV have well pronunciated retrograde spike-like apophyses in both sexes. This is the first record of a dermationid on *C. meridionalis*.

Genus *Paddacoptes* Fain, 1965

Paddacoptes talpacoti (Fain, 1965)

Material examined. 1 female ex *Columbina talpacoti* (Temminck, 1811) (Columbiformes: Columbidae), Brazil, SP, Valinhos, 22°58′ S, 046°59′ W, 14.IX.2010, U. Kawazoe col. (#795).

Remarks. The genus *Paddacoptes* was originally established as a subgenus of *Passeroptes* (Fain 1965) but was elevated to full generic rank by Gaud and Atyeo (1996). It includes seven species recorded on passeriforms (five species) and columbiforms (two species) (Fain 1965). *Paddacoptes talpacoti* was originally described from *Columbina talpacoti* from Brazil. Although there were no illustrations originally provided for that species, this mite perfectly fits the description (Fain 1965). This is the first report of this species since its original description.

Genus *Passeroptes* Fain, 1964

***Passeroptes* sp.**

Material examined. 7 males and 8 females ex *Colaptes melanochloros* (Gmelin, 1788) (Piciformes: Picidae), Brazil, SP, Bragança Paulista, 22°57′ S, 046°32′ W, 14.IV.2010, G. Silveira col. (#737).

Remarks. This species is most similar to *Passeroptes inermis* Fain, 1965, which was described from *Calocitta formosa* Swainson, 1827 (Passeriformes: Corvidae) (Fain 1965). This is the first record of a feather mite on *C. melanochloros* and the first record of a dermationid mite on a bird of the family Picidae.

Genus *Psittophagoides* Fain, 1964

Psittophagoides brotogeris Fain & Bochkov, 2003

Material examined. 1 male and 7 females ex *Brotogeris chiriri*

(Vieillot, 1818) (Psittaciformes: Psittacidae), Brazil, SP, Pedreira, 22°44′ S, 04°046°54′ W, X.2013, D.V. Boas-Filho col. (#1113).

Remarks. *Psittophagoides brotogeris* was described from *Brotogeris versicolurus* (Statius Müller, 1776) from the Brazilian Amazon (Fain and Bochkov 2003) and is here recorded for the first time on *B. chiriri*.

Genus *Rivoltasia* Canestrini, 1894

***Rivoltasia* sp.**

Material examined. 1 female ex *Nothocrax urumutum* (Spix, 1825) (Galliformes: Cracidae), Brazil, SP, Campinas, Bosque Jequitibás, 22°54′ S, 047°03′ W, 19.V.2008, P.A.N. Felippe col. (#330).

Remarks. Among galliform hosts, *Rivoltasia* was previously recorded only on hosts of the families Phasianidae and Odontophoridae (Fain 1965; Forrester and Spalding 2003). This is the first record of the Dermationidae on a cracid bird. The only previous record of *Rivoltasia* in Brazil is that of *R. bifurcata* (Rivolta, 1876) on domestic chickens (Reis 1939).

Family Proctophyllodidae Trouessart & Mégnin, 1884
Subfamily Pterodectinae Park & Atyeo, 1971
Genus *Allodectes* Park & Atyeo, 1971

Allodectes thaluraniae Hernandes, 2013

Material examined. 5 males and 6 females ex *Thalurania glaucopis* (Gmelin, 1788) (Apodiformes: Trochilidae), Brazil, SP, Pedreira, Sítio Acácia, 22°44′ S, 046°54′ W, XII.2010, D.V. Boas-Filho col. (#922).

Remarks. *Allodectes thaluraniae* was described on *T. glaucopis* from Paraná state in Brazil (Hernandes 2013a).

Genus *Toxerodectes* Park & Atyeo, 1971

Toxerodectes subulatus Park & Atyeo, 1974

Material examined. 12 males and 18 females ex *Colibri serrirostris* (Vieillot, 1816) (Apodiformes: Trochilidae), Brazil, MG, Parque do Rio Doce, 19°42′23″ S, 042°34′33″ W, 27.VII.1977, Y. Oniki e E.O. Willis col. (#676, Y-54); 2 males and 7 females, same host species and collector, Brazil, MG, Alto do Palácio, 19°37′ S, 043°53′ W, 26.VII.1977 (#671, Y-76).

Remarks. *Toxerodectes subulatus* was described on *C. serrirostris* from Mato Grosso, São Paulo, and Minas Gerais states in Brazil (Park and Atyeo 1974).

***Toxerodectes* sp.**

Material examined. 11 males and 6 females ex *Thalurania glaucopis* (Gmelin, 1788) (Apodiformes: Trochilidae), Brazil, SP, Pedreira, Sítio Acácia, 22°44′ S, 046°54′ W, XII.2010, D.V. Boas-Filho col. (#922).

Remarks. Five species of *Toxerodectes* have been recorded on trochilids from Brazil (Park and Atyeo 1973; Park and Atyeo 1974; Kanegae et al. 2008; Hernandes 2013a). This undescribed species represents the second species of *Toxerodectes* recorded on *T. glaucopis*; *Toxerodectes biscutatus* has been recorded in Brazil on this host species from Paraná state (Hernandes 2013a).

Genus *Xynonodectes* Park & Atyeo, 1971

***Xynonodectes* sp.**

Material examined. 1 male and 1 female ex *Thalurania glaucopis* (Gmelin, 1788) (Apodiformes: Trochilidae), Brazil, SP, Pedreira, Sítio Acácia, 22°44′ S, 046°54′ W, XII.2010, D.V. Boas-Filho col. (#922).

Remarks. The genus *Xynonodectes* includes four species, three of which have previously been recorded from Brazil: *X. glaucalis* Park and Atyeo, 1975, *X. gracilior* (Trouessart, 1885) and *X. serratus* Park & Atyeo, 1975 (Park and Atyeo 1971; 1975). An undescribed species assigned to the "*Xynonodectes gracilior* complex" was reported on *T. furcata* (Gmelin, 1788) from Colombia (Park and Atyeo 1975; Barreto et al. 2012). This is the first record of the genus *Xynonodectes* on *T. glaucopis* in Brazil.

Family Psoroptoididae Gaud, 1958
Subfamily Pandalurinae Gaud & Atyeo, 1982
Genus *Chiasmalges* Gaud & Atyeo, 1967

***Chiasmalges* sp. A** (Figures 15 and 16)

Material examined. 2 males, 3 females and 4 nymphs ex *Ara ararauna* (Linnaeus, 1758) (Psittaciformes: Psittacidae), Brazil, no additional data.

Remarks. The genus *Chiasmalges* includes four species recorded from New World psittacids (Trouessart 1899; Gaud and Atyeo 1967; Pérez and Ramirez 1996; Mironov et al. 2005b; Valim et al. 2011). This is the first record of *Chiasmalges* on *A. ararauna* and also in Brazil.

***Chiasmalges* sp. B**

Material examined. 15 males and 3 females ex *Psittacara leucophthalma* (Statius Müller, 1776) (Psittaciformes: Psittacidae), Brazil, SP, Rio Claro, IB-UNESP, 22°23′ S, 047°32′ W, 17.VIII.2014, F.A. Hernandes col.; 17 males, 24 females, 3 nymphs, same host species, Brazil, SP, Campinas, Fazenda Monte d'Oeste, 22°54′ S, 047°03′ W, 09.III.2010, D.V. Boas-Filho col. (#684); 2 males, 2 females, same host species, Brazil, SP, Pedreira, Pedreira Zoo, 22°44′ S, 046°53′ W, 02.XII.2009, D.V. Boas-Filho col. (#636).

Remarks. This is the first record of *Chiasmalges* on *P. leucophthalma*.

Family Ptyssalgidae Atyeo & Gaud, 1979
Genus *Ptyssalges* Atyeo & Gaud, 1979

***Ptyssalges* sp.**

Material examined. 6 males, 4 females and 5 nymphs ex *Thalurania glaucopis* (Gmelin, 1788) (Apodiformes: Trochilidae), Brazil, SP, Pedreira, Sítio Acácia, 22°44′ S, 046°54′ W, XII.2010, D.V. Boas-Filho col. (#922).

Remarks. The genus *Ptyssalges* was recently recorded on *T. glaucopis* in Brazil (Hernandes 2013a). This mite represents an undescribed species.

Family Pyroglyphidae Cunliffe, 1958
Subfamily Paralgopsinae Fain, 1988
Genus *Paralgopsis* Gaud & Mouchet, 1959

Paralgopsis sp. A

Material examined. 3 males, 4 females and 1 nymph ex *Crax fasciolata* Spix, 1825 (Galliformes: Cracidae), Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°19′ S, 050°20′ W, 11.IX.2009, D.V. Boas-Filho col. (#562).

Remarks. Two species of *Paralgopsis* are known: *P. paradoxus* (Trouessart, 1899) and *P. ctenodontus* (Gaud, 1968), from psittacids of Colombia and Brazil, respectively (Gaud 1968b). This is the first record of feather mites on *C. fasciolata*, and the first record of a feather mite of the subfamily Paralgopsinae on Galliformes. Recently, molecular based studies showed that the subfamily Paralgopsinae belongs to the Psoroptoididae, rather than the Pyroglyphidae (Klimov and OConnor 2013; Klimov et al. 2015).

Paralgopsis sp. B

Material examined. 8 males, 13 females and 1 nymph ex *Psittacara leucophthalma* (Statius Müller, 1776) (Psittaciformes: Psittacidae), Brazil, SP, Campinas, Fazenda Monte d'este, 22°54′ S, 047°03′ W, 09.III.2010, D.V. Boas-Filho col. (#684); 4 males and 4 females, same host species, Brazil, SP, Pedreira, Zoo of Pedreira, 22°44′ S, 046°53′ W, 02.XII.2009, D.V. Boas-Filho col. (#636); 1 male and 1 female, same host species, Brazil, SP, Rio Claro, IB-UNESP, 22°23′ S, 047°32′ W, 17.VIII.2014, F.A. Hernandes col.

Remarks. The genus *Paralgopsis* was previously recorded on *P. leucophthalma* from captivity in Brazil (Jardim et al. 2012).

Family Thysanocercidae Atyeo & Peterson, 1972
Genus *Thysanocercus* Gaud & Mouchet, 1957

Thysanocercus longitarsus (Trouessart, 1899) **stat. nov.** (Figures 17 and 18)

Material examined. 1 male and 2 females ex *Streptoprocne biscutata* (Sclater, 1866) (Apodiformes: Apodidae), Brazil, MG, Luminárias, Gruta da Serra Grande, 21°33′ S, 044°49′ W, 12.II.2014, L.F.O. Bernardi col.

Remarks. The family Thysanocercidae is restricted to swifts (Apodiformes: Apodidae). This species was recorded in Brazil on *Streptoprocne zonaris* (Shaw, 1766) as a subspecies of *T. cypseli* (Canestrini & Berlese, 1881) (Berla 1960; Gaud and Peterson 1987). Here, we consider *T. longitarsus* as a full species. This is the first record of feather mites on *S. biscutata*.

Family Xolalgidae Dubnin, 1953
Subfamily Ingrassiinae Gaud & Atyeo, 1981
Genus *Dubininia* Vassilev, 1958

Dubininia sp. A

Material examined. 14 males and 5 females ex *Caracara plancus* (Miller, 1777) (Falconiformes: Falconidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, 16.IX.2010, D.V. Boas-Filho col. (#782).

Remarks. The genus *Dubininia* comprises eight species, recorded from psittaciform, falconiform, and cuculiform birds (Gaud 1980; Gaud and Atyeo 1981; Mironov and Galloway 2014; Dabert and Mironov 2015). This genus had already been recorded on *C. plancus* in Florida (USA) (Forrester and Spalding 2003). In Brazil, the only record of *Dubininia* was from a non-native bird from captivity, *Nymphicus hollandicus* (Kerr, 1792) (Psittaciformes: Psittacidae) (Albuquerque et al. 2012). This is the first record of feather mites from *C. plancus* in Brazil.

Dubininia sp. B

Material examined. 30 males, 29 females and 4 nymphs ex *Forpus xanthopterygius* (Spix, 1824) (Psittaciformes: Psittacidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, VI.2012, D.V. Boas-Filho col. (#1074).

Remarks. This species is most similar to *D. africana* Gaud, 1980, which was described from *Poicephalus senegalus* (Linnaeus, 1766) (Psittacidae) from Cameroon (Gaud 1980). This is the first record of feather mites on *F. xanthopterygius*.

Genus *Fainalges* Gaud & Berla, 1965

Fainalges sp. A

Material examined. 14 females ex *Ara chloroptera* Gray, 1859 (Psittaciformes: Psittacidae), Brazil, SP, no additional data; 4 males and 1 female ex *Ara ararauna* (Linnaeus, 1758) (Psittaciformes: Psittacidae), Brazil, no additional data; 1 male, 1 female, same host species, Brazil, SP, Itatiba, 23°00′ S, 046°50′ W, 24.III.2007, U. Kawazoe col. (#152).

Remarks. From the 13 described species of *Fainalges*, three were described from Brazilian birds: *F. annulifer* (Trouessart, 1899) from *Deroptyus accipitrinus* (Linnaeus, 1758) (Psittacidae); *F. intermedius* (Trouessart, 1899) from *Aratinga solstitialis* (Linnaeus, 1766) (Psittacidae); and *F. trichocheylus* Gaud and Berla, 1964 from *Melanerpes flavifrons* (Vieillot, 1818) (Picidae). The last host record is probably a case of contamination, because *Fainalges* species occur exclusively on New World parrots (Gaud and Berla 1964; Pérez 1996; Mironov et al. 2005b). This is the first record of the genus *Fainalges* on both *A. chloroptera* and *A. ararauna*.

Fainalges sp. B

Material examined. 3 males ex *Brotogeris chiriri* (Vieillot, 1818) (Psittaciformes: Psittacidae), Brazil, SP, Pedreira, 22°44′ S, 046°54′ W, X.2013, D.V. Boas-Filho col. (#1113).

Remarks. This is the first record of the genus *Fainalges* on *B. chiriri*.

Fainalges sp. C

Material examined. 1 male and 1 female ex *Psittacara leucophthalma* (Statius Müller, 1776) (Psittaciformes: Psittacidae), Brazil, SP, Campinas, Fazenda Monte d'Oeste, 22°54′ S, 047°03′ W, 09.III.2010, D.V. Boas-Filho col. (#684); 1 male and 1 female, same host species, Brazil, SP, Pedreira, Zoo. de Pedreira, 22°44′ S, 046°53′ W, 02.XII.2009, D.V. Boas-Filho col. (#636).

Remarks. This species is most similar to *F. vulgaris* Pérez 1995, which was described from *Psittacara holochlora* from Mexico (Pérez 1995). This is the first record of the genus *Fainalges* on *P. leucophthalma*.

Genus *Glaucalges* Gaud, 1980

***Glaucalges* sp. A**

Material examined. 1 male and 1 nymph ex *Tyto furcata* (Temminck, 1827) (Strigiformes: Tytonidae), Brazil, SP, Campinas, Bosque Jequitibás, 22°54′ S, 047°03′ W, 15.V.2008, Paulo Anselmo col. (#319).

Remarks. The genus *Glaucalges* comprises three species, two of them recorded from owls (Strigiformes), and one from an African musophagid (Cuculiformes) (Gaud 1980; Gaud and Atyeo 1981; Dabert et al. 2008). This mite is distinctly different from the description of *G. tytonis* Dabert et al. 2008 collected on *T. alba* (Scopoli, 1769) from Europe (Dabert et al. 2008) and seems closely related to *G. attenuatus* (Buchholz, 1869) instead, based on the length of the setae *e2*. This is the first record of feather mites on *T. furcata* and of *Glaucalges* in Brazil.

***Glaucalges* sp. B**

Material examined. 5 males, 4 females and 1 nymph ex *Athene cunicularia* (Molina, 1782) (Strigiformes: Strigidae), Brazil, SP, Campinas, Fazenda Mt. d'Este, 22°49′ S, 047°02′ W, 03.VI.2009, D.V. Boas-Filho col. (#491); 2 females, 3 nymphs, same host species, Brazil, SP, Rio Claro, UNESP, 22°24′ S, 047°33′ W, 23.VIII.2013, F.A.F. Jacomassa col.; 15 males, 7 females, 1 nymph, same host species, Brazil, SP, Jaguariúna, Bairro Tanquinho, 22°42′ S, 046°59′ W, II.2010, D.V. Boas-Filho col. (#697).

Remarks. The genus *Glaucalges* was recorded on *A. cunicularia* from Florida (Forrester and Spalding 2003). This is the first record of feather mites on *A. cunicularia* in Brazil.

Genus *Vingrassia* Vasyukova & Mironov, 1991

***Vingrassia* sp.**

Material examined. 5 males and 4 nymphs ex *Cairina moschata* (Linnaeus, 1758) (Anseriformes: Anatidae), Brazil, SP, Campinas, Fazenda São João de Atibaia, 06.VI.2006, D.V. Boas-Filho col. (#480).

Remarks. The genus *Vingrassia* is restricted to birds of the order Anseriformes and comprises two species, *V. velata* (Mégnin, 1877) and *V. cygni* Mironov & Galloway, 2002 (Vasyukova and Mironov 1991; Mironov and Galloway 2002b). This is the first record of the genus *Vingrassia* in Brazil and on *C. moschata*.

Genus *Protonyssus* Trouessart, 1916

Protonyssus athoracicus Hernandes & Pedroso, 2016

Material examined. 7 males and 5 females ex *Brotogeris chiriri* (Vieillot, 1818) (Psittaciformes: Psittacidae), Brazil, SP, Pedreira, 22°44′ S, 046°54′ W, X.2013, D.V. Boas-Filho col. (#1113).

Remarks. There are six species in the genus *Protonyssus* (Mironov et al. 2005b, Hernandes and Pedroso 2016). This species was recently described from this material, representing the first record of *Protonyssus* from Brazil (Hernandes and Pedroso 2016).

Protonyssus mironovi Hernandes & Pedroso, 2016
(Figures 19 and 20)

Material examined. 9 males and 14 females ex *Psittacara leucophthalmus* (Statius Müller, 1776) (Psittaciformes: Psittacidae), Brazil, SP, Campinas, Fazenda Monte d'este, 22°54′ S, 047°03′ W, 09.III.2010, D.V. Boas-Filho col. (#684).

Remarks. This species was also recently described from this material (Hernandes and Pedroso 2016).

Genus *Pteralloptes* Trouessart, 1885

***Pteralloptes* sp. A**

Material examined. 4 males and 6 females ex *Nycticorax nycticorax* (Linnaeus, 1758) (Ciconiiformes: Ardeidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, X.2010, D.V. Boas-Filho col. (#908).

Remarks. In the revision of the subfamily Ingrassiinae, Gaud and Atyeo (1981) recognized a single species in this genus, *P. stellaris* (Buchholz, 1869), which was described from *Botaurus stellaris* (Linnaeus, 1758) and recorded from several other species of herons, egrets, and bitterns (Ardeidae). However, they acknowledged that there might actually be several distinct species. The species we found on *N. nycticorax* does not correspond to *P. stellaris*. This is the first record of *Pteralloptes* in Brazil.

***Pteralloptes* sp. B**
(Figures 21 and 22)

Material examined. 3 males, 4 females and 7 nymphs ex *Syrigma sibilatrix* (Temminck, 1824) (Ciconiiformes: Ardeidae), Brazil, SP, São Paulo, Aeroporto Campo de Marte, °23°30′ S, 046°38′ W, 01.X.2013.

Remarks. This species from *S. sibilatrix* also does not correspond to *P. stellaris* and has features that clearly distinguish it from the *Pteralloptes* sp. A reported on *N. nycticorax* above. This is the first record of feather mites on *S. sibilatrix*.

Superfamily Pterolichoidea Trouessart & Mégnin, 1884
Family Ascouracaridae Gaud & Atyeo, 1976
Genus *Ascouracarus* Gaud & Kolebinova, 1973

Ascouracarus chordeili Mironov & Fain, 2003

Material examined. 3 males, 3 females and 2 nymphs ex *Lurocalis semitorquatus* (Gmelin, 1789) (Caprimulgiformes: Caprimulgidae), Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°19′ S, 050°20′ W, 08.IX.2011, D.V. Boas-Filho col. (#1008).

Remarks. *Ascouracarus chordeili* was described on *Chordeiles rupestris* from Brazilian Amazon (Mironov and Fain 2003). This is the first record of feather mites on *L. semitorquatus*.

***Ascouracarus* sp. A**

Material examined. 2 females ex *Guira guira* (Gmelin, 1788) (Cuculiformes: Cuculidae), Brazil, SP, Campinas, 22°50′ S, 047°02′ W, 10.V.2010, D.V. Boas-Filho col. (#722).

Remarks. The genus *Ascouracarus* comprises four species, three of them from the Caprimulgiformes and one from Psittaciformes (Gaud and Kolebinova 1973; Gaud and Atyeo 1976; Dabert and Ehrnsberger 1992;

Mironov and Fain 2003). This quill mite represents an undescribed species, and is the first record of Ascouracaridae on a member of the order Cuculiformes.

Ascouracarus sp. B

Material examined. 5 males, 4 females and 9 nymphs ex *Nyctibius griseus* (Gmelin, 1789) (Caprimulgiformes: Nyctibiidae), Brazil, SP, Campinas, Sítio Nishimura, 22°54′ S, 047°03′ W, II.2013, D.V. Boas-Filho col. (#839).

Remarks. This species is most similar to *A. chordeili* Mironov & Fain, 2003 but represents an undescribed species. This is the first record of the Ascouracaridae on birds of the family Nyctibiidae and the first record of feather mites on *N. griseus* from Brazil.

Genus *Cystoidosoma* Gaud & Atyeo, 1976

Cystoidosoma centuri Dabert & Ehrnsberger, 1992

Material examined. 4 males, 10 females and 1 nymph ex *Colaptes campestris* (Vieillot, 1818) (Piciformes: Picidae), Brazil, SP, Ubatuba, 23°26′ S, 045°04′ W, V.2010, E. Leme/D.V. Boas-Filho col. (#724).

Remarks. *Cystoidosoma centuri* was described from *Centurus* (=*Melanerpes*) *chrysogenys* (Vigors, 1839) from Mexico, and also recorded on *C. carolinensis* (Linnaeus, 1758), *C. uropygialis* (Baird, 1854), and *C. aurifrons* (Wagler, 1829) without mentioning of locality (Dabert and Ehrnsberger 1992). *Cystoidosoma* is the sole ascouracarid genus recorded on Picidae. This is the first record of feather mites on *Colaptes campestris*.

Family Crypturoptidae Gaud, Atyeo & Berla, 1973
Genus *Mesosathes* Gaud, Atyeo & Berla, 1973

Mesosathes nothurae Alzuet & Brandetti, 1990 (Figures 23 and 24)

Material examined. 17 males, 15 females and 4 nymphs ex *Nothura maculosa* (Temminck, 1815) (Tinamiformes: Tinamidae), Brazil, SP, Araras, km 56 W, SP 191, 22°22′ S, 047°27′ W, 28.I.2014, G.O. Almeida col.

Remarks. This species was described on *Nothura maculosa* from Argentina (Alzuet and Brandetti 1990), and is here recorded for the first time in Brazil.

Family Eustathiidae
Genus *Neochauliacea* Gaud & Atyeo, 1967

Neochauliacea ocellata Gaud & Atyeo, 1967

Material examined. 1 male and 1 female ex *Streptoprocne biscutata* (Sclater, 1866) (Apodiformes: Apodidae), Brazil, MG, Luminárias, Gruta da Serra Grande, 21°33′ S, 044°49′ W, 12.II.2014, L.F.O. Bernardi col.

Remarks. This species has already been collected on *Streptoprocne zonaris* (Shaw, 1796) (Apodiformes: Apodidae) from Brazil (Peterson et al. 1980) and is recorded for the first time on *S. biscutata*.

Neochauliacia sp. A

Material examined. 6 males and 5 females ex *Streptoprocne biscutata* (Sclater, 1866) (Apodiformes: Apodidae), Brazil, MG, Luminárias, Gruta da Serra Grande, 21°33′ S, 044°49′ W, 28.I.2014, L.F.O. Bernardi col.

Remarks. The genus *Neochauliacea* comprises 16 species recorded from swifts (Apodidae) (Gaud and Atyeo 1967; Peterson et al. 1980). This is the first record of feather mites on *S. biscutata*.

Neochauliacea sp. B

Material examined. 11 males and 3 females ex *Streptoprocne biscutata* (Sclater, 1866) (Apodiformes: Apodidae), Brazil, RN, Acari, Faz. Ingá, 06°26′ S, 036°38′ W, 26.VIII.2007, M. Pichorim col.

Remarks. As in some psittacids (Pérez 1995) and cuckoos (Mironov et al. 2015), swifts (Apodidae) are known to host more than one species of the same genus (Peterson et al. 1980).

Genus *Rhynchocaulus* Gaud & Berla, 1963

Rhynchocaulus paradoxus Gaud & Berla, 1963

Material examined. 1 male, 6 females and 3 nymphs ex *Streptoprocne biscutata* (Sclater, 1866) (Apodiformes: Apodidae), Brazil, MG, Luminárias, Gruta da Serra Grande, 21°33′ S, 044°49′ W, 12.II.2014, L.F.O. Bernardi col; 2 males and 6 females, same host, locality and collector, 28.I.2014.

Remarks. *Rhynchocaulus paradoxus* was described on *Streptoprocne zonaris* from Mato Grosso state in Brazil (Gaud and Berla 1963) and is recorded here for the first time on *S. biscutata*.

Family Falculiferidae Oudemans, 1905
Genus *Byersalges* Atyeo & Winchell, 1984

Byersalges talpacoti (Černý, 1975)

Material examined. 10 males and 20 females ex *Columbina talpacoti* (Temminck, 1811) (Columbiformes: Columbidae), Brazil, SP, Valinhos, 22°58′ S, 046°59′ W, 14.IX.2010, U. Kawazoe col. (#795); 2 males, 3 females and 2 nymphs from *C. squammata* (Lesson, 1831) (Columbiformes: Columbidae), Brazil, SP, Valinhos, 23°01′ S, 047°01′ W, 24.XI.2006, D.V. Boas-Filho col. (#135).

Remarks. *Byersalges talpacoti* has been recorded in Brazil on five different columbids: *Columbina talpacoti*, *C. passerina*, *C. squammata*, *Zenaida auriculata*, and *Uropelia campestris* (Spix, 1825) (Atyeo and Winchell 1984; Valim et al. 2004; Moraes et al. 2011; Goulart et al. 2011).

Byersalges phyllophorus Gaud & Barré, 1988

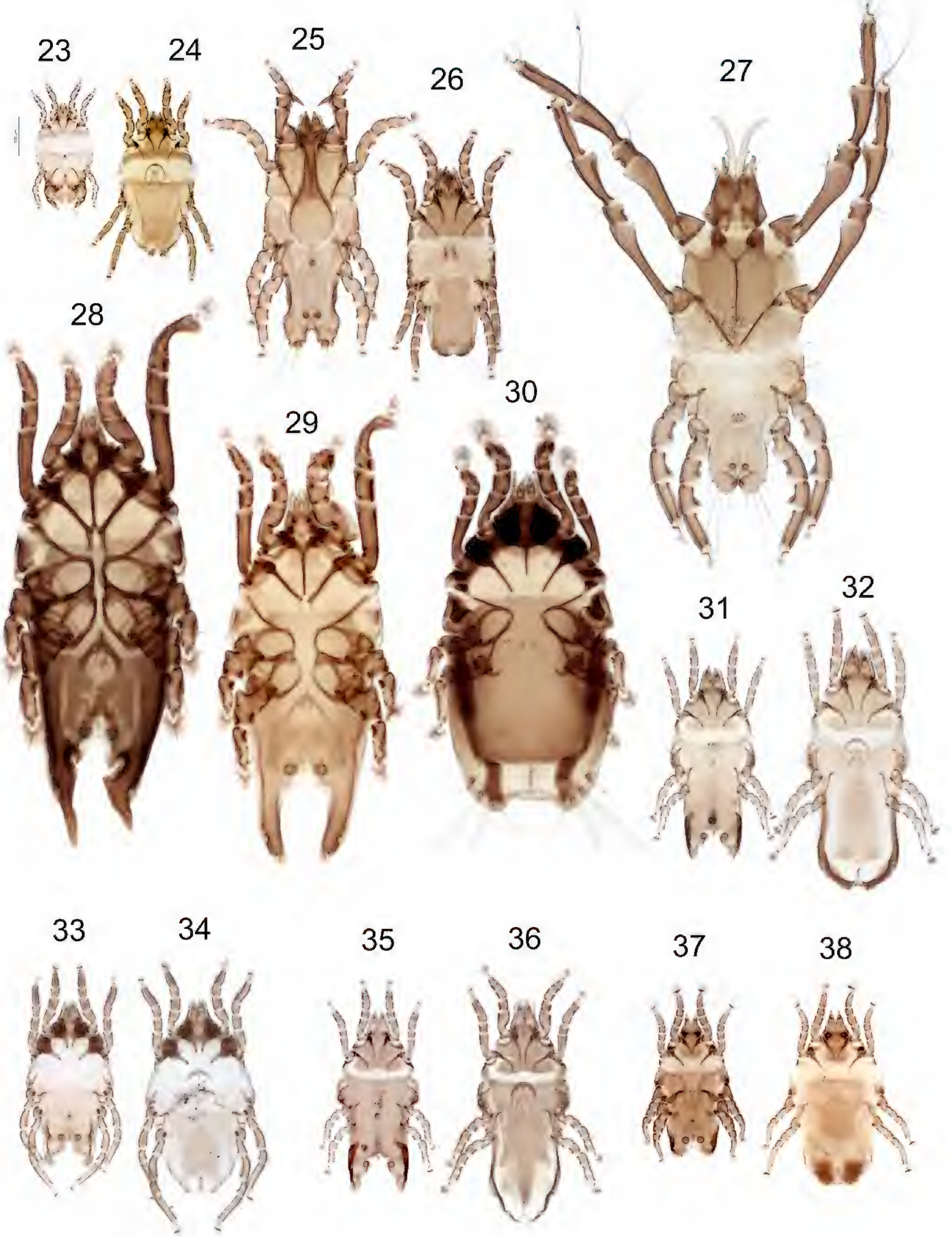
Material examined. 3 males ex *Columbina talpacoti* (Temminck, 1811) (Columbiformes: Columbidae), Brazil, SP, Valinhos, 22°58′ S, 046°59′ S, 14.IX.2010, U. Kawazoe col. (#795).

Remarks. *Byersalges phyllophorus* was described from *C. passerina* from Guadaloupe (Gaud and Barré 1988) and has already been recorded in Brazil on *C. talpacoti* (Moraes et al. 2011).

Genus *Hyperaspidacarus* Atyeo & Smith, 1983

Hyperaspidacarus tridentatus Atyeo & Smith, 1983 (Figures 25 and 26)

Material examined. 5 males and 1 female ex *Columbina talpacoti* (Temminck, 1811) (Columbiformes: Columbidae), Brazil, MG, Parque



Figures 23–38. Feather mites (Pterolichoidea) recorded on non-passerine birds of Brazil. *Mesosathes nothurae* **23** ♂, **24** ♀; *Hyperaspidacarus tridentatus* **25** ♂, **26** ♀; *Falculifer* sp. C **27** ♂; *Michaelia neotropica* **28** ♂ heteromorphic, **29** ♂ homeomorphic, **30** ♀; *Capitolichus* sp. **31** ♂, **32** ♀; *Metagabucinia* sp. **33** ♂, **34** ♀; *Tocolichus* sp. **35** ♂, **36** ♀; *Dermonoton* sp. C **37** ♂, **38** ♀.

do Rio Doce, 19°42′ S, 042°34′ W, 01.VIII.1977, Oniki Y. and Willis E.O. col. (#669, Y-15).

Remarks. *Hyperaspidacarus tridentatus* has already been recorded in Brazil on *Columbina squammata* and on *C. passerina* (Atyeo and Smith 1983). This is the first record of *H. tridentatus* on *C. talpacoti* from Brazil.

Genus *Falculifer* Railliet, 1896

Falculifer leptotilae Gaud & Barré, 1992

Material examined. 1 male and 4 females ex *Leptotila rufaxilla* (Richard & Bernard, 1792) (Columbiformes: Columbidae), Brazil, SP, Jacareí, 23°18′ S, 045°17′ W, 15.VI.2011, Montanhini A.M. col. (#M22714); 1 male and 1 female, same host species and collector, Brazil, SP, Serra do Japi, 28.VI.2011 (#M22715).

Remarks. *Falculifer leptotilae* was described from *L. jamaicensis* (Linnaeus, 1766) from Jamaica and Mexico and also recorded on *L. verreauxi* Bonaparte, 1855 from Trinidad, Guyana, and Colombia (Gaud and Barré 1992). This species has also been previously recorded on *L. rufaxilla* from Tocantins state in Brazil (Enout et al. 2012).

***Falculifer* sp. A**

Material examined. 4 males (1 homeomorphic, 3 heteromorphic) and 7 females ex *Patagioenas picazuro* (Temminck, 1813) (Columbiformes: Columbidae), Brazil, SP, Zooparque, Itatiba, 23°02′ S, 046°44′ W, 14.IX.2006, U. Kawazoe col. (#73).

Remarks. The genus *Falculifer* comprises 12 species restricted to columbiform birds (Gaud 1976; Gaud and Barré 1992). This is the first record of feather mites on *P. picazuro*.

***Falculifer* sp. B**

Material examined. 1 male (heteromorphic), 4 females and 1 nymph ex *Patagioenas picazuro* (Temminck, 1813) (Columbiformes: Columbidae), Brazil, SP, Campinas, Sítio Nishimura, 22°44′ S, 047°01′ W, 02.VIII.2007, João Baitaca Bilesquí col. (#199); 1 male (heteromorphic) and 6 females same host species, Brazil, SP, Campinas, UNICAMP, 22°48′ S, 047°03′ W, 22.VI.2010, D.V. Boas-Filho col. (#742); 2 females and 2 nymphs, same host species, Brazil, SP, Pedreira, Sítio Alexandre, 22°42′ S, 046°59′ W, D.V. Boas-Filho col. (#689); 12 males (2 homeomorphic, 10 heteromorphic) and 13 females ex *Patagioenas picazuro* (Temminck, 1813) (Columbiformes: Columbidae), Brazil, SP, Campinas, UNICAMP, 22°49′ S, 047°04′ W, IX.2010, D.V. Boas-Filho col. (#826).

Remarks. This is the first record of feather mites on *P. picazuro*.

***Falculifer* sp. C** (Figure 27)

Material examined. 5 males, 6 females and 4 nymphs ex *Patagioenas speciosa* (Gmelin, 1789) (Columbiformes: Columbidae), Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°40′ S, 050°23′ W, 11.IX.2009, L.F. Silveira col. (#552).

Remarks. This is the first record of feather mites on *P. speciosa*.

Family Freyanidae Dubnin, 1953
Subfamily Michaelichinae Gaud & Mouchet, 1959

Genus *Michaelia* Trouessart, 1884

Michaelia neotropica Hernandes & Mironov 2016 *in* Hernandes, Mironov, Bauchan & Ochoa, 2016 (Figures 28 to 30)

Material examined. 5 males (heteromorphic), 12 males (homeomorphic) and 63 females ex *Phalacrocorax brasilianus* (Gmelin, 1789) (Pelecaniformes: Phalacrocoracidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, 25.VIII.2008, D.V. Boas-Filho col. (#390); 2 males (heteromorphic), 10 males (homeomorphic) and 7 females, same host species, Brazil, SP, Arthur Nogueira, 22°34′ S, 047°10′ W, 06.VII.2010, L. Gisloti col. (#744).

Remarks. This species was recently described from this host in Brazil (Hernandes et al. 2016).

Family Gabuciniidae Gaud & Atyeo, 1975
Genus *Aetacarus* Gaud & Atyeo, 1975

***Aetacarus* sp. A**

Material examined. 1 male, 4 females and 8 nymphs ex *Caracara plancus* (Miller, 1777) (Falconiformes: Falconidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, 16.IX.2010, D.V. Boas-Filho col. (#782); 4 males and 4 females from same host species, Brazil, SP, Campinas, Unicamp, 22°49′ S, 047°04′ W, S.M. Allegretti col. (#22); 17 males, 21 females and 11 nymphs from same host species, Brazil, SP, Rio Claro, UNESP, 22°24′ S, 047°33′ W, 22.IV.2014, F.A. Hernandes col.

Remarks. This genus currently includes 12 species from birds of the families Accipitridae, Sagittariidae, and Otitidae (Gaud and Atyeo 1974; Gaud 1983, 1968a; Proctor et al. 2006); it is recorded for the first time in Brazil.

***Aetacarus* sp. B**

Material examined. 2 males and 4 females ex *Milvago chimachima* (Vieillot, 1816) (Falconiformes: Falconidae), Brazil, SP, Campinas, km 119, SP 340, 22°48′ S, 047°02′ W, X.2009, D.V. Boas-Filho col. (#583).

Remarks. This is the first record of feather mites on *M. chimachima*.

Genus *Capitolichus* Gaud & Atyeo, 1975

***Capitolichus* sp.** (Figures 31 and 32)

Material examined. 19 males and 13 females ex *Colaptes campestris* (Vieillot, 1818) (Piciformes: Picidae), Brazil, SP, Ubatuba, 23°26′ S, 045°04′ W, V.2010, E. Leme/D.V. Boas-Filho col. (#724).

Remarks. There are four named species in this genus (Gaud and Atyeo 1975; Alzuet et al. 1988), collected from Piciformes (Capitonidae), Passeriformes (Cotingidae, Tyrannidae), and Trogoniformes (Trogonidae). Forrester and Spalding (2003) reported an undetermined species of *Capitolichus* from *Dryocopus pileatus* (Linnaeus, 1758) (Picidae). The mite from *C. campestris* represents an undescribed species. This is the first record of feather mites on *C. campestris* and also the first record of the genus *Capitolichus* in Brazil.

Genus *Hieracolichus* Gaud & Atyeo, 1975

***Hieracolichus* sp. A**

Material examined. 6 males, 6 females and 6 nymphs ex *Heterospizias meridionalis* (Latham, 1790) (Falconiformes: Accipitridae), Brazil, SP, Mococa, 21°28′ S, 047°00′ W, XI.2012, D.V. Boas-Filho col. (#1086).

Remarks. The genus *Hieracolichus* occurs on birds of the family Accipitridae and includes nine named species (Gaud and Atyeo 1975; Gaud 1983; Mironov et al. 2007). This is the first record of feather mites on *H. meridionalis* and the first record of the genus *Hieracolichus* in Brazil.

Genus *Metagabucinia* Mironov & Proctor *in* Mironov, Proctor, Barreto & Zimmerman, 2007

***Metagabucinia* sp.**

(Figures 33–34)

Material examined. 14 males and 8 females ex *Ictinia plumbea* (Gmelin, 1788) (Falconiformes: Accipitridae), Brazil, SP, Pedreira, 22°44′ S, 046°54′ W, XI.2010,D.V. Boas-Filho col. (#890).

Remarks. This is the first record of feather mites on *I. plumbea*.

Genus *Piciformobia* Gaud & Atyeo, 1975

Piciformobia guirae Alzuet, Cicchino & Abrahamovich, 1988

Material examined. 5 males and 7 females ex *Guira guira* (Gmelin, 1788) (Cuculiformes: Cuculidae), Brazil, SC, Bela Vista do Toldo (Ouro Verde), S. do Lucindo, 29.IV.1929, E. Kaemfer col. (#125, AMNH-314267); 6 males, 3 females and 2 nymphs, same host species, Brazil, SP, Campinas, 22°49′ S, 047°04′ W, 29.IX.2009, D.V. Boas-Filho col. (#571); 1 male and 2 females, same host species, Brazil, SP, Araras, km 32W, SP 191, 22°22′ S, 047°15′ W, 25.II.2014, G.O. Almeida col.; 7 males and 15 females, same host species, Brazil, RS, Pelotas, 31°46'S 52°20'W, 30.X.2006, F.M. Lambrecht col.; 1 male and 2 females, same host species, Brazil, SP, Campinas, 22°49′ S, 047°04′ W, IX.2010, D.V. Boas-Filho col. (#828); 1 female and 1 nymph, same host species, Brazil, SP, Amparo, 22°42′ S, 046°45′ W, 10.III.2007, D.V. Boas-Filho col. (#155).

Remarks. *Piciformobia guirae* was described from *G. guira* from Argentina, and was also recorded on the same host species in Brazil (Alzuet et al. 1988).

***Piciformobia* sp.**

Material examined. 20 males and 27 females ex *Guira guira* (Gmelin, 1788) (Cuculiformes: Cuculidae), Brazil, RS, Pelotas, 31°46′ S, 52°20′ W, 30.X.2006, F.M. Lambrecht col.; 2 males, same host species, Brazil, MG, Lavras, 21°13′ S, 044°58′ W, 26.II.2014, L.F.O. Bernardi col.; 1 male and 1 female, Brazil, SP, Amparo, 22°42′ S, 046°45′ W, 10.III.2007, D.V. Boas-Filho col.; 3 females, same host species, Brazil, SP, Campinas, 22°49′ S, 047°04′ W, IX.2010, D.V. Boas-Filho col. (#828).

Remarks. This is a second species of the genus *Piciformobia* from *G. guira*.

Genus *Paragabucinia* Gaud & Atyeo, 1975

***Paragabucinia* sp.**

Material examined. 1 male and 1 nymph ex *Hydropsalis albicollis* (Gmelin, 1789) (Caprimulgiformes: Caprimulgidae), Brazil, SP, Rio Claro, Floresta Edmundo Navarro de Andrade, 22°24′ S, 047°31′ W, 05.IV.2014, F.A.F. Jacomassa.

Remarks. This mite represent a second undescribed species of the genus *Paragabucinia* on *H. albicollis*. The species *Paragabucinia brasiliensis* Hernandes, 2014 was previously described on the same host in Brazil (Hernandes 2014).

Genus *Tocolichus* Gaud & Atyeo, 1975

***Tocolichus* sp.**

(Figures 35 and 36)

Material examined. 12 males, 6 females and 5 nymphs ex *Ramphastos toco* Statius Müller, 1776 (Piciformes: Rhamphastidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, XII.2012, D.V. Boas-Filho col. (#1094); 10 males and 10 females, same host species and locality, II.2013, Francisco/D.V. Boas-Filho col. (#1095).

Remarks. Two species are known in this genus: *T. allepimerus*, described from *Selenidera maculirostris* (Lichtenstein 1823) from Brazil; and *T. ramphastinus* (Mégnin and Trouessart, 1884), reported from many species of toucans (Gaud and Atyeo 1975). This mite represents an undescribed species of the genus *Tocolichus* and is the first record of feather mites on *R. toco*.

Family Kramerellidae Gaud & Mouchet, 1961

Genus *Dermonoton* Gaud & Mouchet, 1959

***Dermonoton* sp. A**

Material examined. 7 males, 15 females and 2 nymphs ex *Tyto furcata* (Temminck, 1827) (Strigiformes: Tytonidae), Brazil, SP, Araras, SP 191, km 56 W, 22°22′ S, 047°27′ W, 16.I.2014, G.O. Almeida col.; 1 male and 1 nymph, same host species, Brazil, SP, Campinas, Bosque Jequitibás, 22°54′ S, 047°03′ W, 15.V.2008, Paulo Anselmo col. (#319); 1 male, same host species, Brazil, SP, Campinas, SP 340, km 117, 22°54′ S, 047°03′ W, 21.VI.2010, D.V. Boas-Filho col. (#741).

Remarks. There are six named species of *Dermonoton* (Gaud and Mouchet 1959b; Gaud 1980). The mite recorded here represents an undescribed species. This is the first record of feather mites on *T. furcata* and the first record of the genus *Dermonoton* in Brazil.

***Dermonoton* sp. B**

Material examined. 12 males, 5 females and 14 nymphs ex *Athene cunicularia* (Molina, 1782) (Strigiformes: Strigidae), Brazil, SP, Rio Claro, UNESP, 22°24′ S, 047°33′ W, 01.II.2013, F.A.F. Jacomassa col. 9 males and 4 females, same host species, Brazil, SP, Campinas, Fazenda Mt. D'Oeste, 022°49′ S, 047°02′ W, 03.VI.2009, D.V. Boas-Filho col. (#491).

Remarks. The species *D. parallelus* was recorded on *A. cunicularia* in Florida, USA (Forrester and Spalding 2003). The mite from *A. cunicularia* reported here represents an undescribed species. This is the first record of feather mites on *A. cunicularia* from Brazil.

Dermonoton sp. C

(Figures 37 and 38)

Material examined. 10 males, 5 females and 3 nymphs ex *Megascops choliba* (Vieillot, 1817) (Strigiformes: Strigidae), Brazil, SP, Santa Bárbara, 22°45′ S, 047°24′ W, 02.III.2013, F.A.F. Jacomassa col. 7 males and 7 females, same host species, Brazil, SP, Jaguariúna, 22°41′ S, 047°00′ W, 07.X.2009, D.V. Boas-Filho col. (#580). 32 males, 40 females and 6 nymphs, same host species, Brazil, SP, Rio Claro, UNESP, 22°24′ S, 047°33′ W, 23.VIII.2013, L.G.A. Pedroso col.

Remarks. Hernandes and OConnor (2015) recently described the first feather mite from an owl in Brazil, an ascouracarid, *Cystoidosoma hermaphroditus*, described from *M. choliba*. This species of *Dermonoton* clearly represents an undescribed species and is the first record of the genus *Dermonoton* on *M. choliba*.

Dermonoton sp. D

Material examined. 6 males, 8 females and 1 nymph ex *Pulsatrix koeniswaldiana* (Bertoni and Bertoni, 1901) (Strigiformes: Strigidae), Brazil, SP, Mogi Guaçu, 22°22′ S, 046°56′ W, V.2012, D.V. Boas-Filho col.

Remarks. This mite represents an undescribed species of *Dermonoton* and is the first record of feather mites on *P. koeniswaldiana*.

Genus *Kramerella* Trouessart, 1916

Kramerella quadrata Gaud, 1980

(Figure 39 and 40)

Material examined. 1 male, 1 female ex *Tyto furcata* (Temminck, 1827) (Strigiformes: Tytonidae), Brazil, SP, Campinas, Bosque Jequitibás, 22°54′ S, 047°03′ W, 15.V.2008, Paulo Anselmo col. (#319). 1 male, same host species, Brazil, SP, Araras, SP 191, km 56 W, 22°22′ S, 047°27′ W, 16.I.2014, G.O. Almeida col. 1 female, same host species, Brazil, SP, Campinas, SP 340, km 117, 22°54′ S, 047°03′ W, 21.VI.2010, D.V. Boas-Filho col. (#741).

Remarks. *Kramerella quadrata* was described from *T. alba affinis* (Blyth, 1862) from Cameroon in Africa (Gaud 1980) and was also recorded on *T. alba* from Florida, USA (Florrester and Spalding 2003). It is recorded for the first time in Brazil.

Kramerella sp.

Material examined. 2 males and 6 females ex *Asio stygius* (Wagler, 1832) (Strigiformes: Strigidae), Brazil, SP, Campinas, B. Jequitibás, 22°44′ S, 047°02′ W, 21.VIII.2008, D.V. Boas-Filho col. (#369).

Remarks. This species seems most similar to *Kramerella oti* Lönnfors, 1937 that was described on *Asio otus* (Linnaeus, 1758) from Africa (Gaud 1980). This is the first record of feather mites on *Asio stygius*.

Genus *Petitota* Gaud & Mouchet, 1959

Petitota sp.

(Figures 41and 42)

Material examined. 1 male and 11 nymphs ex *Megascops choliba* (Vieillot, 1817) (Strigiformes: Strigidae), Brazil, SP, Santa Bárbara, 22°45′ S, 047°24′ W, 02.III.2013, FAF Jacomassa col.

Remarks. Three species are recognized in the genus *Petitota* (Gaud and Mouchet 1959a; Atyeo and Philips 1984; Mironov 1997). This genus is considered rare in mite collections (Atyeo and Philips 1984). The specimens reported here represent an undescribed species and the first records of *Petitota* on *M. choliba* and in Brazil.

Genus *Pseudogabucinia* Černý, 1961

Pseudogabucinia sp. A

Material examined. 1 female ex *Elanus leucurus* (Vieillot, 1818) (Falconiformes: Accipitridae), Brazil, SP, Itapira, Sítio São José, 22°26′ S, 046°49′ W, 18.VIII.2008, D.V. Boas-Filho col. (#361).

Remarks. The genus *Pseudogabucinia* includes five species reported from birds of the families Ciconiidae, Falconidae, Accipitridae, Gruidae, and Otididae (Gaud 1968a; Gaud 1982; Gaud and Mouchet 1961; Dubinin 1956). From these species, only *P. intermedia* (Mégnin & Trouessart, 1884) has been recorded on Accipitridae and Falconidae (Gaud 1988). This is the first feather mite recorded on *E. leucurus* and represents an undescribed species.

Pseudogabucinia sp. B

(Figures 43 and 44)

Material examined. 7 males and 6 females ex *Syrigma sibilatrix* (Temminck, 1824) (Ciconiiformes: Ardeidae), Brazil, SP, São Paulo, Aeroporto Campo de Marte, 23°30′ S, 046°38'W, 01.X.2013.

Remarks. This mite represents an undescribed species. This is the first record of feather mites on *S. sibilatrix* and the first record of the genus *Pseudogabucinia* on a bird of the family Ardeidae.

Family Pterolichidae Trouessart & Mégnin, 1884
Subfamily Ardeacarinae Gaud, 1981
Genus *Ardeacarus* Dubinin, 1951

Ardeacarus sp. A

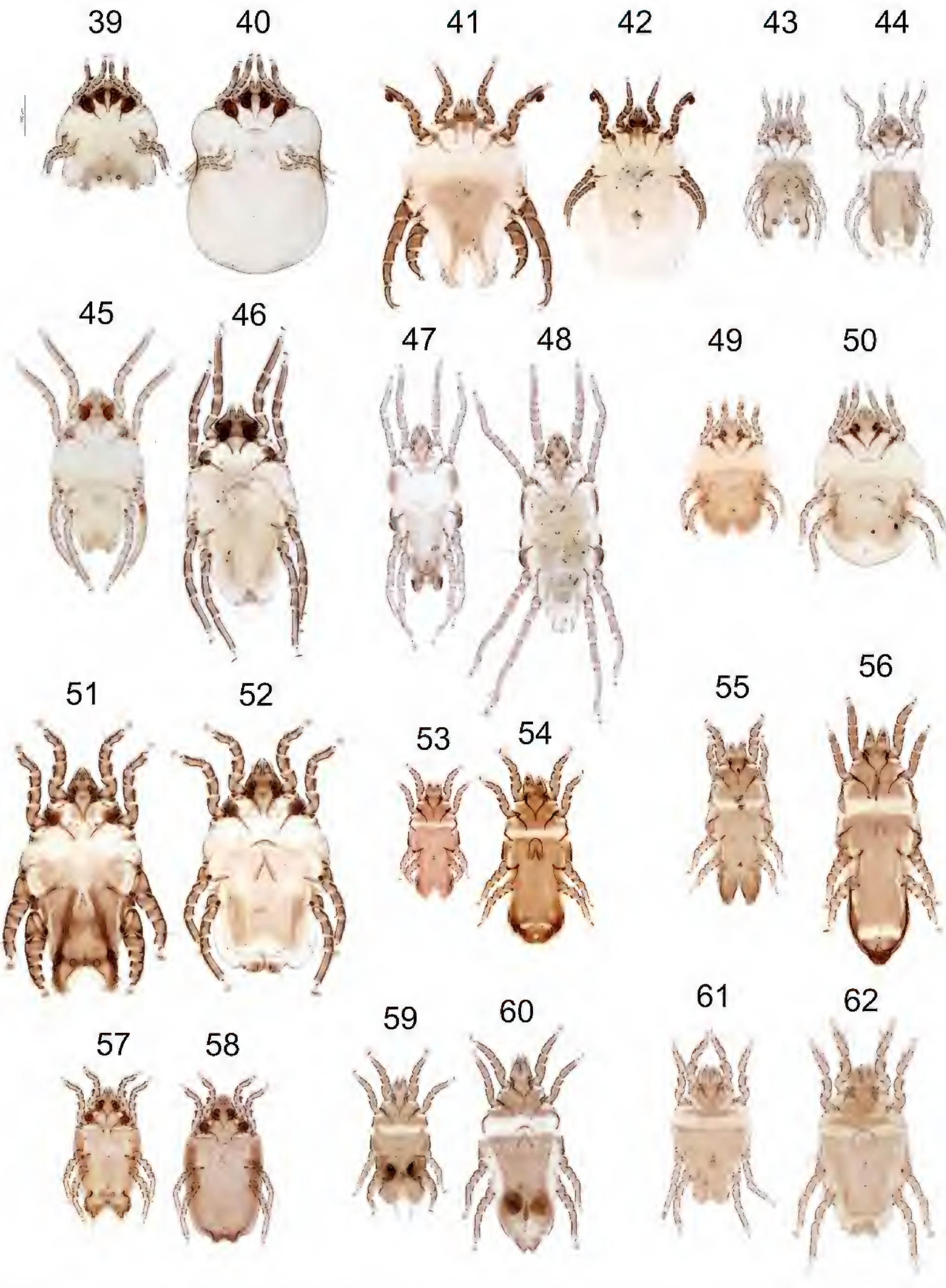
Material examined. 5 males and 7 females ex *Botaurus pinnatus* (Wagler, 1829) (Ciconiiformes: Ardeidae), Brazil, SP, Pedreira, 22°44′ S, 046°54′ W, 22.IV.2010, D.V. Boas-Filho col. (#708);

Remarks. The genus *Ardeacarus* is typical from ardeids and includes a single named species, *A. ardeae* (Canestrini, 1878) originally described from *Ixobrychus minutus* (Linnaeus, 1766) (Ardeidae) from Europe (Dubinin 1951; Gaud 1981a) and later reported from many ardeids around the world. Our specimens represent an undescribed species of *Ardeacarus*. This is the first record of feather mites on *B. pinnatus*.

Ardeacarus sp. B

Material examined. 2 males and 2 females ex *Butorides striata* (Linnaeus, 1758) (Ciconiiformes: Ardeidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, V.2009, D.V. Boas-Filho col. (#473).

Remarks. This is the first record of a feather mite on *B. striata* from Brazil. The single species of *Ardeacarus* recorded from this host was *A. ardeae* from Africa and Russia (Dubinin 1956; Černý 1967; Gaud 1981a). This mite represents another undescribed species in the genus *Ardeacarus*.



Figures 39–62. Feather mites (Pterolichoidea) recorded on non-passerine birds of Brazil. *Kramerella quadrata* **39** ♂, **40** ♀; *Petitota* sp. **41** ♂, **42** ♀; *Pseudogabucinia* sp. B **43** ♂, **44** ♀; *Ardeacarus* sp. C **45** ♂, **46** ♀; *Ardeialges* sp. B **47** ♂, **48** ♀; *Epopolichus* sp. **49** ♂, **50** ♀; *Genoprotolichus* sp. **51** ♂, **52** ♀; *Grallobia* sp. A **53** ♂, **54** ♀; *Grallolichus* sp. A **55** ♂, **56** ♀; *Lopharalichus* sp. B **57** ♂, **58** ♀; *Neorhytidelasma* sp. C **59** ♂, **60** ♀; *Pterolichus* sp. B **61** ♂, **62** ♀.

Ardeacarus sp. C

(Figures 45 and 46)

Material examined. 6 males and 6 females ex *Bubulcus ibis* (Linnaeus, 1758) (Ciconiiformes: Ardeidae), Brazil, SP, Amparo, 22°42′ S, 046°45′ W, 03.V.2010, D.V. Boas-Filho col. (#715).

Remarks. This is the first record of a feather mite on this host from Brazil. Currently, the single species of *Ardeacarus* recorded from this host is *A. ardeae* from Africa (Gaud 1981a). This mite represents another undescribed species in the genus *Ardeacarus*.

Ardeacarus sp. D

Material examined. 10 males and 10 females ex *Syrigma sibilatrix* (Temminck, 1824) (Ciconiiformes: Ardeidae), Brazil, SP, São Paulo, Aeroporto Campo de Marte, 23°30′ S, 046°38′ W, 01.X.2013.

Remarks. This is the first record of feather mites on *Syrigma sibilatrix*. This mite represents another undescribed species in the genus *Ardeacarus*.

Ardeacarus sp. E

Material examined. 9 males and 14 females ex *Ardea alba* Linnaeus, 1758 (Ciconiiformes: Ardeidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, X.2010, D.V. Boas-Filho col.

Remarks. The single species of *Ardeacarus* recorded from this host was *A. ardeae* from Africa, Russia, Cuba, and USA (Dubinin 1956; Černý 1967; Gaud 1981a). This mite represents another undescribed species in the genus *Ardeacarus*.

Ardeacarus sp. F

Material examined. 7 males and 4 females from *Nycticorax nycticorax* (Linnaeus, 1758) (Ciconiiformes: Ardeidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, X.2010, D.V. Boas-Filho col. (#908).

Remarks. *Ardeacaris ardeae* has been recorded on *N. nycticorax* from Africa, Russia, and Cuba (Dubinin 1956; Černý 1967; Gaud 1981a). This is the first record of feather mites on *N. nycticorax* from Brazil and also represents another undescribed species in the genus *Ardeacarus*.

Subfamily Ardeialginae Gaud, 1981

Genus *Ardeialges* Gaud & Mouchet, 1959

Ardeialges sp. A

Material examined. 1 female ex *Nycticorax nycticorax* (Linnaeus, 1758) (Ciconiiformes: Ardeidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, X.2010, D.V. Boas-Filho col. (#908).

Remarks. There are two named *Ardeialges* species: *A. dermogaster* Gaud & Mouchet, 1959, described from *Trigiornis leucolophus* (Jardine, 1846) (Ardeidae) from Africa (Gaud and Mouchet 1959b); and *A. herodias* (Dubinin, 1951), described from *Ardea cinerea* Linnaeus, 1758 from Russia but also recorded on other ardeids from Africa (Gaud 1981a). This is the first record of the genus *Ardeialges* on *N. nycticorax* and the first record of this genus in Brazil.

Ardeialges sp. B

(Figures 47 and 48)

Material examined. 10 males, 11 females and 1 nymph ex *Syrigma sibilatrix* (Temminck, 1824) (Ciconiiformes: Ardeidae), Brazil, SP, São Paulo, Aeroporto Campo de Marte, 23°30′ S, 046°38′ W, 01.X.2013.

Remarks. This mite represents another undescribed species of *Ardeialges* and the first feather mite recorded from *Syrigma sibilatrix*.

Subfamily Pterolichinae Trouessart & Mégnin, 1884

Pterolichinae gen. A sp.

Material examined. 2 males and 7 females ex *Penelope obscura* Temminck, 1815 (Galliformes: Cracidae), Brazil, MG, Poços de Caldas, Sítio Ferradura, 21°47′ S, 046°33′ W, 2009, D.V. Boas-Filho col. (#836).

Remarks. This feather mite represents an undescribed pterolichine genus, which is recognized by a set of unique characteristics: absence of setae *f2*, coxal fields I and II sclerotized and by the absence of setae *e1* on females. This is the first record of feather mites from *P. obscura*.

Pterolichinae gen. B sp.

Material examined. 6 males and 1 nymph ex *Aburria cujubi* (Pelzeln, 1858) (Galliformes: Cracidae), Brazil, MG, Poços de Caldas, Sítio Ferradura, 21°47′ S, 046°33′ W, 2010, D.V. Boas-Filho col. (#750).

Remarks. This species seems most similar to the genus *Tetraolichus* by the absence of the setae *f2* (Mironov et al. 2010). This feather mite could not be placed in any known pterolichine genus. This is the first record of a feather mite from *A. cujubi*.

Pterolichinae gen. C sp. A

Material examined. 6 males, 6 females and 1 nymph ex *Pauxi tomentosa* (Spix, 1825) (Galliformes: Cracidae), Brazil, MG, Poços de Caldas, Sítio Ferradura, 21°47′ S, 046°33′ W, 2010, D.V. Boas-Filho col. (#752); 11 males and 8 females ex *Crax blumenbachii* Spix, 1825 (Galliformes: Cracidae), Brazil, MG, Poços de Caldas, Criadouro de Aves, 21°47′ S, 046°33′ W, 2010, D.V. Boas-Filho col. (#751).

Remarks. This mite has the appearance of *Pterolichus* and also seems similar to *Tetraolichus* because of the absence of the hysterosomal setae *f2*; however, this mite does not fit any known pterolichine genus. This is the first record of feather mites on both *P. tomentosa* and *C. blumenbachii*.

Pterolichinae gen. C sp. B

Material examined. 5 males and 1 female ex *Crax fasciolata* (Spix, 1825) (Galliformes: Cracidae), Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°19′ S, 50°20′ W, 08.IX.2011, D.V. Boas-Filho col. (#1007).

Remarks. This species also lacks setae *f2* and is similar to *Tetraolichus* and represents a new species that probably belongs to the same genus as the undescribed species recorded above. This is the first record of feather mites from *C. fasciolata*.

Pterolichinae gen. D sp.

Material examined. 6 males, 2 females and 2 nymphs ex *Crax fasciolata* (Spix, 1825) (Galliformes: Cracidae), Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°19′ S, 50°20′ W, 08.IX.2011, D.V. Boas-Filho col. (#1007); 1 female, same host species, locality and collector, 11.IX.2009, (#562).

Remarks. This species represents another undescribed genus, differing by the thickened leg IV in males. This is the first record of a feather mite from *C. fasciolata*.

Genus *Epopolichus* Gaud, 1961

***Epopolichus* sp.** (Figures 49 and 50)

Material examined. 3 males and 3 females ex *Milvago chimachima* (Vieillot, 1816) (Falconiformes: Falconidae), Brazil, SP, Cardoso, 20°04′ S, 049°54′ W, IX.2008, J.M. Marçura col. (#564); 9 nymphs, same host species, Brazil, SP, Campinas, Rod. SP 340, Km 119, 22°54′ S, 047°03′ W, 07.X.2009, D.V. Boas-Filho col. (#583).

Remarks. The genus *Epopolichus* currently includes three species, *E. atelus* Gaud, 1981 from *Upupa epops* Linnaeus, 1758 (Upupidae), *E. falconis* Chirov & Mironov, 1988 & *E. minor* (Mégnin and Trouessart, 1884); the latter two are from falconids (Gaud 1981b; Chirov and Mironov 1988; Gaud and Atyeo 1996). The record of *Epopolichus* from a New World falconid restarts the debate about the transmission of this genus between two distinct bird families (Gaud and Atyeo 1996). This is the first record of a feather mite from *M. chimachima* and the first record of the genus *Epopolichus* in the Neotropics (Gaud and Atyeo 1996).

Genus *Genoprotolichus* Gaud & Atyeo, 1996

***Genoprotolichus* sp.** (Figures 51 and 52)

Material examined. 20 males and 12 females ex *Psittacara leucophthalmus* (Statius Müller, 1776) (Psittaciformes, Psittacidae), Brazil, SP, Campinas, Fazenda Monte d'este, 22°54′ S, 047°03′ W, 09.III.2010, D.V. Boas-Filho col. (#684).

Remarks. This genus currently includes four species, all reported from New World Psittacidae (Favette and Trouessart 1904; Gaud and Atyeo 1996; Mironov et al. 2005b). This is the first record of *Genoprotolichus* in Brazil and also the first record on *P. leucophthalmus*.

Genus *Grallobia* Hull, 1934

***Grallobia* sp. A**
(Figures 53 and 54)

Material examined. 7 males and 5 females ex *Aramides cajaneus* (Statius Müller, 1776) (Gruiformes: Rallidae), Brazil, SP, São José do Rio Preto, 20°49′ S, 049°20′ W, II.2009, F.A. Hernandes col.; 2 males and 1 female, same host species, Brazil, SP, Campinas, Unicamp, 22°54′ S, 047°03′ W, 16.IX.2010, D.V. Boas-Filho col. (#800).

Remarks. The genus *Grallobia* is restricted to Gruiformes and includes 10 named species (Gaud 1968a). This is the first record of the genus *Grallobia* in Brazil and the first record of feather mites from *A. cajaneus*.

***Grallobia* sp. B**

Material examined. 12 males and 9 females ex *Aramides cajaneus* (Statius Müller, 1776) (Gruiformes: Rallidae), Brazil, SP, Campinas, 22°49′ S, 047°02′ W, 02.VIII.2007, D.V. Boas-Filho col. (#401); 12 males and 6 females ex *Gallinula galeata* (Lichtenstein, 1818) (Gruiformes: Rallidae), Brazil, SP, Campinas, 22°54′ S, 047°03′ W, 09.IV.2010, D.V. Boas-Filho col. (#789).

Remarks. This is another undescribed species of *Grallobia*. This is the first record of a feather mite from *Aramides cajaneus* and the first record of feather mites on *G. galeata* from Brazil.

Genus *Grallolichus* Gaud, 1960

***Grallolichus* sp. A** (Figures 55 and 56)

Material examined. 2 males and 4 females ex *Aramides cajaneus* (Statius Müller, 1776) (Gruiformes: Rallidae), Brazil, SP, Campinas, Unicamp, 22°54′ S, 047°03′ W, 16.IX.2010, D.V. Boas-Filho col. (#800).

Remarks. The genus *Grallolichus* includes 15 named species, most of them described from African rallids (Gaud and Mouchet 1963; Gaud 1968a; Cerný 1967). This is the first record of a feather mite from *A. cajaneus* and the first record of *Grallolichus* in Brazil.

***Grallolichus* sp. B**

Material examined. 2 males and 2 females ex *Aramides cajaneus* (Statius Müller, 1776) (Gruiformes: Rallidae), Brazil, SP, Campinas, 22°49′ S, 047°02′ W, 02.VII.2007, D.V. Boas-Filho col. (#401).

Remarks. This mite represents a new species most similar to *Grallolichus* sp. A reported above.

Genus *Lopharalichus* Gaud & Atyeo, 1996

***Lopharalichus* sp. A**

Material examined. 2 males and 2 females ex *Ara ararauna* (Linnaeus, 1758) (Psittaciformes: Psittacidae), Brazil, no additional info; 3 males, 1 female same host species, Brazil, SP, Itatiba, 23°00′ S, 046°50′ W, 24.III.2007, U. Kawazoe col. (#152).

Remarks. The genus *Lopharalichus* comprises three species (Mégnin and Trouessart 1884; Mironov et al. 2005b). An undetermined species was also recorded in Brazil on *Brotogeris chiriri* (Enout et al. 2012). This genus is recorded for the first time on *A. ararauna*.

***Lopharalichus* sp. B** (Figures 57–58)

Material examined. 14 males and 8 females ex *Brotogeris chiriri* (Vieillot, 1818) (Psittaciformes: Psittacidae), Brazil, SP, Pedreira, 22°44′ S, 046°54′ W, X.2013, D.V. Boas-Filho col. (#1113); 4 females and 1 nymph, same host species, Brazil, PA, Santana do Araguaia, Fazenda Fartura, 09°40′ S, 50°23′ W, 07.IX.2011, D.V. Boas-Filho col. (#1006).

Remarks. This mite also represents an undescribed species. An undetermined species of *Lopharalichus* was also recorded in Brazil on *Brotogeris chiriri* by Enout et al. (2012), from Tocantins state. As we had no access to

that material, we are unable to determine whether these mites constitute the same or a different species.

Lopharalichus sp. C

Material examined. 11 males, 31 females and 1 nymph ex *Forpus xanthopterygius* (Spix, 1824) (Psittaciformes: Psittacidae), Brazil, SP, Pedreira, Sítio Alexandre, 22°44′ S, 046°54′ W, VI.2012, D.V. Boas-Filho col. (#1074).

Remarks. This mite also represents an undescribed species. This is the first record of feather mites on *F. xanthopterygius*.

Genus *Neorhytidelasma* Mironov & Perez, 2003

Neorhytidelasma sp. A

Material examined. 4 males and 3 females ex *Ara ararauna* (Linnaeus, 1758) (Psittaciformes: Psittacidae), Brazil, SP, Itatiba, 23°00′ S, 046°50′ W, 24.III.2007, U. Kawazoe col. (#152).

Remarks. This mite species represents an undescribed species from the *mesomexicana* species group (Atyeo and Pérez 1988; Mironov and Pérez 2003). This is the first record of the genus *Neorhytidelasma* on *A. ararauna*.

Neorhytidelasma sp. B

Material examined. 12 males and 13 females ex *Anodorhynchus hyacinthinus* (Latham, 1790) (Psittaciformes: Psittacidae), Brazil, SP, Piracicaba, Zoo Piracicaba, 22°41′ S, 047°39′ W, 15.I.2014, R.B. Novaes col.

Remarks. This mite species also represents an undescribed species from the *mesoxicana* species group (Atyeo and Pérez 1988; Mironov and Pérez 2003). This mite is most similar to *Neorhytidelasma* sp. A reported above. This is the first record of the genus *Neorhytidelasma* on *A. hyacinthinus*.

Neorhytidelasma sp. C

(Figures 59 and 60)

Material examined. 8 males and 11 females ex *Psittacara leucophthalmus* (Statius Müller, 1776) (Psittaciformes: Psittacidae), Brazil, SP, Campinas, Fazenda Monte d'este, 22°54′ S, 047°03′ W, 09.III.2010, D.V. Boas-Filho col. (#684); 1 male, same host species, Brazil, SP, Rio Claro, IB-UNESP, 22°23′ S, 047°32′ W, 17.VIII.2014, F.A. Hernandes col.

Remarks. This species also belongs to the *mesomexicana* species group (Atyeo et al. 1988; Mironov and Pérez 2003) and is very close to *N. mesomexicana* Atyeo et al. 1988, which was described from *P. holochlorus* (Sclater, 1859) (Atyeo and Pérez 1988; Atyeo et al. 1988). This is the first record of the genus *Neorhytidelasma* on *P. leucophthalmus*.

Genus *Pterolichus* Trouessart & Mégnin, 1884

Pterolichus sp. A

Material examined. 5 males and 9 females ex *Nothocrax urumutum* (Spix, 1825) (Galliformes: Cracidae), Brazil, SP, Campinas, Bosque Jequitibás, 22°54′ S, 047°03′ W, 19.V.2008, P.A.N. Felippe col. (#330).

Remarks. This species is virtually undistinguishable from *P. obtusus* and might indeed be that species because the feathers were collected from captive birds, often kept with Old World Galliformes. Therefore, our record might not represent a natural association.

Pterolichus sp. B

(Figures 61 and 62)

Material examined. 18 males, 25 females and 3 nymphs ex *Coragyps atratus* (Bechstein, 1793) (Falconiformes: Cathartidae), Brazil, BA, Medeiros Neto, 17°22′ S, 040°13′ W, I.2008, D.V. Boas-Filho col. (#285).

Remarks. The genus *Pterolichus* is until now reported exclusively from galliform birds (Atyeo and Gaud 1992; Mironov et al. 2010). *Coragyps atratus* is the commonest necrophagous bird found in Brazil and could possibly have acquired these mites by foraging on dead phasianid birds, common in rural and urban areas. Therefore, although this is the first record of Pterolichidae on a bird of the family Cathartidae, it may not represent a natural association.

DISCUSSION

All new pterolichine genera were recorded on birds of the family Cracidae, from a bird order (Galliformes) that is known to harbor an exuberant variety of pterolichid genera around the world (Atyeo and Pérez 1991; Atyeo 1992). The only two records of feather mites on cracids in Brazil are also from the family Pterolichidae: *Tetraolichus forficula* and *Xoloptes minor*, both described from the cracid *Ortalis squamata* (Trouessart and Neumann 1888), although these mite identifications have been reported as questionable (Mironov et al. 2010).

In a survey of feather mites of birds from Canada, Galloway et al. (2014) found a higher number of analgoidean species in comparison with pterolichoideans (94 vs. 39 species), based on exploration of a similar number of passeriform and non-passeriform birds (47 vs. 58). Concerning only non-passerines, those authors recorded a slightly higher number of analgoidean mites than pterolichoideans (52 vs. 42 mite species). But the composition of non-passerines in that paper was quite different with a large number of aquatic bird orders (i.e., Suliformes, Anseriformes, and Charadriiformes) from our study. Many aquatic birds, hummingbirds, and passerines host a higher diversity of analgoidean feather mites living on the flight feathers, such as the families Proctophyllodidae, Alloptidae, and Avenzoaridae (Gaud and Atyeo 1996). On the other hand, in terrestrial non-passerine birds, which made up the majority of the birds in our study, the superfamily Pterolichoidea is usually more diverse in this microhabitat (e.g., families Crypturoptidae, Falculiferidae, Gabuciniidae, and Pterolichidae).

Other records presented here are also noteworthy, such as the records of *Paddacoptes talpacoti* (Dermationidae), *Hyperaspidacarus tridentatus* (Falculiferidae),

and *Micralges steganonotus* (Analgidae) on *Columbina talpacoti* (Columbidae). A previous study (Moraes et al. 2011) assessed the mite fauna from 51 individuals of this host from São Paulo state, but none of the aforementioned mites were observed. This may indicate a scattered pattern of distribution of these mites on different populations of *C. talpacoti* in Brazil.

The following records also deserve mention: the first record of the genus *Pseudogabucinia* (Kramerellidae) on a bird of the family Ardeidae (*Syrigma sibilatrix*), and the first record of the genus *Paralgopsis* (Pyroglyphidae) on *Crax fasciolata* (Galliformes). *Paralgopsis* had previously been recorded only from inside the quills of psittaciform birds (Gaud 1968b; Jardim et al. 2012), and our record of this genus on a galliform could be the result of contamination, because it was collected from a captive bird. However, information about feather mites from this bird species is scarce in Brazil and requires further investigation.

The records and specimens reported here will provide the material not only for future taxonomic and descriptive research, but also for comparative studies of interpopulation, geographic, and host variation of feather mites. The large number of undescribed genera and species clearly reflects the high proportion of unknown feather mites to be discovered in Neotropical birds and reinforces the need for more taxonomic studies with these mites, especially in Brazil with its rich avifauna.

ACKNOWLEDGEMENTS

We are grateful to Dr. Angelo Pires do Prado (*in memorian*) and to his student and main collector of the material used in this work, the M.Sc. David Vilas Boas-Filho, as well as his team of students from the University of Campinas (Unicamp), Brazil. We also wish to acknowledge all other collectors: Yoshika Oniki, Edwin O. Willis (*in memorian*), Carlos O.A. Gussoni, Leopoldo O.F. Bernardi, Fabio A.F. Jacomassa, Gustavo O. Almeida, and Matheus H. Gabriel. Also, thanks to the biologist Rachel B. Santos from the Airport of São Paulo (Congonhas) for donating several dead specimens of birds for study. We are also thankful to Vitor Q. Piacentini (Academy of Natural Sciences of Drexel University, Ornithology Department, Philadelphia, USA) for confirming the occurrence of several bird species. This study was funded by the FAPESP, Sao Paulo Research Foundation (2011/50145-0) and (2016/11671-1). LGAP acknowleges a scholarship from the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).

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Author contributions: Both authors contributed equally to this article.

Received: 6 April 2016
Accepted: 22 October 2016
Academic editor: Ricardo Ott